

# THE MONIST.

## THE PHILOSOPHY OF EVOLUTION.

**I**N SO DIFFICULT a quest as that on which we are engaged in these essays—nothing less than the search for a consistent theory of thought and things in which the claims of science and of metaphysics shall be carefully distinguished and assessed at their true value—occasional recapitulation is not only admissible but desirable.

At the outset we took our stand on the realities of experience. Dealing chiefly with sensory impressions, we contended that their objective aspect, in the phenomena of the world around us, has a reality and a validity which are their inalienable right as facts of experience. The scent, color, form, and position of the bunch of violets, which lay before me, were regarded, in all their minutest details, as realities of experience. But this insistence on the reality of the objective aspect involved no denial of the correlative subjective reality of every sensory impression and of all experience. The plain man, without troubling his head about object or subject, accepts a rough and ready, but quite serviceable, classification of the data of experience into the external things and occurrences in the world around him, and the ideas and emotions which they call forth in himself. The student of physical science, looks outwards and devotes his attention to the nature and sequence of objective phenomena, with only tacit reference to their subjective aspect in consciousness. The psychologist on the other hand looks inwards and deals primarily with the nature and sequence of mental states, re-

garding physical phenomena as products in and for consciousness. It is almost inevitable that both the physicist on the one hand and the psychologist on the other, should magnify his office; that the one should regard the objective phenomena as primary, and the states of consciousness secondary, while the other assumes a point of view from which the order appears to be reversed, states of consciousness being primary and their phenomenal products secondary. Our purpose was to show that their respective claims are, if due allowance be made for such diverse attitudes, of strictly co-ordinate validity. Starting from the unity of sensory experience we contended that the two aspects, objective and subjective, were the products of analysis. To put the matter in diagrammatic form we have the following scheme:

Objective aspect as  
dealt with by physical  
science.



Subjective aspect  
as dealt with by psy-  
chology.

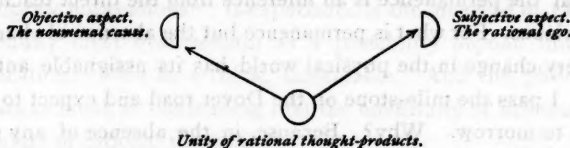
Unity of sensory experience.

Thus we reach analytic dualism as the result of the polarisation of the monistic unity of sensory experience. And it was urged that to regard the phenomena with which physical science is occupied as primarily states of consciousness is not so much false in fact as erroneous in method. It is the result of looking at experience through the spectacles of psychology.

But experience, even when supplemented by the expectations justifiably founded thereon, presents us merely with sequences, observed, remembered, or anticipated. No inductive process dealing with these data, and these alone, can give rise to generalisations concerning their causal connexions or concerning the continued persistence of the occasions of sensory experience. These are the metaphysical importations of our rational thought—the postulates of reason. If the physicist speaks of cause as the *raison d'être* of phenomenal sequence he is dealing with this noumenal existence in its objective aspect. If the psychologist speaks of the subjective activity of the mind, or ego, as underlying and giving connexion to



the sequence of states of consciousness, he too is dealing with noumenal existence. By an extension of analytic dualism into the metaphysical sphere the unity of rational thought assumes its dual aspect. Expressing this as before in diagrammatic form, we have the following scheme :



If now we superimpose upon this scheme that given above, we have the noumenal reality (for thought) underlying the phenomenal reality (of sensory experience).

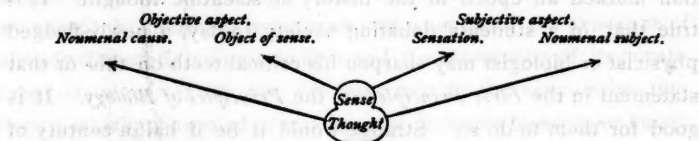
We must therefore, in view of this extended scheme, understand by *experientia est* the existence, not only of sensory experience, but also of rational thought. Herein analysis distinguishes two aspects, the objective and the subjective. And we may perhaps be enabled, through this conception of analytic dualism, to perceive how it comes about that the philosophical biologist, looking at the matter through objective spectacles, sees in experience the outcome of organic evolution ; while the philosophical psychologist, looking at the matter through subjective spectacles, sees in experience the product of the individual mind, and exclaims with Descartes, *Cogito*. Genetically *experientia est* has precedence over his dictum ; since self-consciousness is a late product of evolution. From the point of view of the philosopher of Descartes's time, however, genetic considerations had scarcely emerged into the light of thought. For him, and for us too apart from evolution, the *cogito* is primary, since it is the ego which alone gives unity and continuity to experience. Both Cartesian and evolutionist may well be right, though they approach the problem of experience from such different directions. We have at present, however, no concern with psychology or the ego. Their consideration must be reserved for a later essay. It is the philosophy of evolution to which we have now to direct our attention.

How necessary a philosophy of evolution is to supplement the hypothesis of analytic dualism will be evident if we revert for a moment to what was said in the last essay concerning J. S. Mill's permanent possibilities of sensation. It was there urged that the permanence is a metaphysical assumption. In reply to this it may be said that the permanence is an inference from the direct teachings of experience. For what is permanence but the absence of change? But every change in the physical world has its assignable antecedents. I pass the mile-stone on the Dover road and expect to find it there to-morrow. Why? Because, in the absence of any such conditions as may determine its disappearance, there are no antecedents of change. This permanence, therefore, when no cause of change can be shown, is an essentially scientific conception. Persistence, to give it another name, lies at the root of the indestructibility of matter and the conservation of energy. The plain common sense of the matter, it will be urged, is that for any physical change, physical antecedents can be discovered. And this is the direct teaching of experience. To which, I reply, that with all this I am in substantial agreement. No doubt experience warrants the expectation of finding the mile-stone, in the absence of physical antecedents of change, still there unaltered; no doubt such expectations are abundantly justified. I have said as much myself. But I understand Mill's "permanent possibility of sensation" to carry with it the implication of continuity of existence independently of all experience. Whether actually an object of sensation or not, there it remains, at present outside experience, but ready to be perceived at any moment. And I still fail to see in what way sensory experience can afford the data for the establishment of any induction concerning the permanence of that which only occasionally swims into its ken. We are forced to admit that the continuous existence of something beyond our senses is a fundamental postulate of reason—a metaphysical assumption justifiable because it so admirably fits and renders explicable the facts of sensory experience.

How then does this conception of an independent existence fit in with the conception of analytic dualism? Granted that it is a

reality for thought. Have we really gone further than asserting that the permanent possibility of sensation is a permanent possibility of thought? Suppose that no one thinks of it. Is it not then every whit as much outside the extended experience which includes thought, as the unseen mile-stone is outside the limited experience of sensory impressions? If experience is the measure of existence continuity must ever remain as a possibility beyond immediate verification. This is, I think, undeniable. And the philosopher admits as much in contending that the continuity of existence is a postulate of rational thought.

The insufficiency of analytic dualism may be exhibited in another way. Let us illustrate it again in diagrammatic form :



Here the analysis of sensory experience gives, on the one hand, the object of sense, and, on the other, the sensation in consciousness ; while the analysis of thought gives the noumenal cause underlying the object of sense, and the noumenal subject underlying the conscious sensation. But there is apparently no indication in the scheme of any mode of interaction between the noumenal cause and the noumenal subject with the phenomena of sense as intermediaries. If object and subject are merely distinguishable aspects of a monistic unity, how can this unity be regarded as in any sense the product of their interaction? How can the origin of an experience susceptible of such analysis be explained? The answer to these questions can only be found through an appeal to the philosophy of evolution which may afford us a supplementary hypothesis. To this, therefore, we must now turn.

"Evolution," according to Mr. Herbert Spencer's formula, "is an integration of matter and a concomitant dissipation of motion ; during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity ; and during

which the retained motion undergoes a parallel transformation." I cannot approach the consideration of the philosophy of evolution without a passing tribute to the genius of Mr. Herbert Spencer. When we remember the time at which he wrote his germinal essay on *Progress: Its Law and Cause*, when evolution was not the watch-word which for men of science it has since become, when the conservation of energy was not yet definitely formulated and the *Origin of Species* was still unwritten, or at least not yet published, when scientific knowledge was the possession of the few and such views as Mr. Spencer advocated were damned with the stigma of unorthodoxy; when we remember all this, we must, in common justice, admit that the broad sweep and firm grasp of his unifying conception marked an epoch in the history of scientific thought. It is true that, in a students' debating society to-day, a newly-fledged physicist or biologist may sharpen his critical teeth on this or that statement in the *First Principles* or the *Principles of Biology*. It is good for them to do so. Strange would it be if half a century of scientific specialism had found no flaw in the work of one whose comprehensive intellect took the whole sphere of knowledge for its province. The wonder is that so much has stood the test of an ordeal so searching. All honor be to him whose informing and inspiring work has left an indelible impress upon his age.

In the "Westminster" article of 1877, wherein is to be found the germ of his evolutionary doctrine, after saying that "the investigations of Wolff, Goethe, and von Baer have established the truth that the series of changes gone through during the development of a seed into a tree, or an ovum into an animal, constitute an advance from homogeneity of structure to heterogeneity of structure" through a series of differentiations, Mr. Spencer continues as follows: "Now, we propose in the first place to show, that this law of organic progress is the law of all progress. Whether it be in her development of the earth, in the development of life upon its surface, in the development of society, of government, of manufacture, of commerce, of language, literature, science, art, this same evolution of the simple into the complex, through successive differentiations, holds throughout. From the earliest traceable cos-

mical changes, down to the latest results of civilisation, we shall find that the transformation of the homogeneous into the heterogeneous, is that in which progress essentially consists."

Mr. Spencer here strikes clearly and firmly one of the key-notes of the harmonic process of development. The root-ideas of the conception of evolution are, first differentiation, and secondly the interaction of the differentiated products. How the initial differentiation arose we do not know. Pry as far as we can into the past with the telescope of speculation assisted by the kinematoscope of imagination, and we find differentiation already established. Assuming, with the nebular hypothesis, a primitive fire-mist, we must assume also an environment from which it is already differentiated and to which its heat energy is communicated by radiation. Or if we accept the meteoric hypothesis, we must grant the existence of already differentiated cosmic dust and the interaction of its constituent meteors. If we give yet freer rein to the speculative tendency, which, chastened or running riot, is man's blessing or curse, and, straining our mental vision, search deeper still into the beginnings of our universe, to find in the homogeneous substance that Sir Wm. Crookes calls *protyle*, the stuff from which the chemical elements were differentiated; even in this dim and wholly hypothetical region we are forced to assume, as the antecedent conditions of differentiation, transformations and redistributions of energy, implying a prior differentiation to render such interaction conceivable. Or if, once more, we conceive the elemental atoms as vortex rings, differentiated from the ether and thenceforth interacting, even here at the very threshold of differentiation, we seek for an answer to the question: Under what physical conditions did such vortex motion originate? Nor is this baffling of the speculative reason to be wondered at. The search for origin in terms of antecedence and sequence must ever be illusory. For if we assume, in accordance with the axiom of physical causation, that every change in a material system has antecedent conditions, the assumption involves a retrogression which is endless. For every group of antecedent conditions is itself the outcome of a prior antecedent. It is only through sheer weariness of speculation that we



choose a starting-point, behind which stretches the nebulous haze of agnosticism.

Supposing, then,—with the fullest confession of the speculative nature of the supposition—that the elements arose by the differentiation of protyllic vortices, or by some analogous mode of genesis, we have to note that the differentiation was determinate. Under the given conditions of interaction (whatever they may have been) just these seventy or eighty definite and determinate groupings of protyle which we term the elemental atoms came into being. Nor is their interaction less determinate; and here we leave the tenuous atmosphere of speculation for the more solid ground of observation and experiment. The elements form definite compounds. No one, in the absence of observation or analogy based on practical experience (his own or that of others), could foretell what new characters a compound, resulting from the chemical union of well-known elements, would possess. The nature and properties of complex chemical substances appear to be the results of a determinate synthesis. Science can tell us the antecedent conditions and the consequent products,—so much carbon and sulphur under such and such conditions of temperature and pressure, giving so much carbon disulphide vapor which will condense under other conditions of temperature and pressure to a colorless liquid with a high refractive index. But science cannot tell us why this is so. Its constraining force of chemical attraction, if regarded as more than a measure of the interaction actually observed, is a metaphysical conception. It has no place in the chain of antecedents and sequents but underlies them as their *raison d'être*. And if we accept the metaphysical implication, it is here that we must postulate the source and origin of the determinism that is observed in the phenomenal sequence.

The relatively homogeneous substance, rendered fluid by aqueous fusion, from which by slow cooling the constituent minerals of granite—its orthoclase, its mica, its quartz, and so forth—crystallise out, exemplifies the process of differentiation by which the Plutonic rocks within the earth's crust originate. And during every stage of the process there is interaction between the develop-



ing determinate crystals and the differentiating magma which forms their environment. Count Bournon described some seven hundred different forms of crystallised calcite. To what extent more recent research has diminished or increased this number matters not for our present purpose. Science bids us believe that for each of the many different forms there are different antecedent conditions. The form is the index of stability under the play of its special environment. And the close association between interaction and differentiation is here again exemplified. But it is unnecessary to dwell longer on the lessons of determinate differentiation which the chemical compound and the crystal teach us with such unmistakable clearness. The lessons of mountain and valley, as interpreted by physical geology, are of a different kind. There is a sense in which every product of evolution may truly be called determinate. Given the slope of the land, its constituent strata, their hardness and resisting power, their jointing cleavage and so forth; given also the denuding forces which play upon its surface, together with the measure of their intensity; and the interaction of denudation and structure determine to a nicety every contour of hill and vale, bay and promontory. Thus is the differentiation of the physical features of the earth's crust brought about. Thus is the face of the continent carved into sculptured relief. But it is obvious that we have here but little of that intrinsic determination which gives to the chemical compound its definite properties, or finds expression in the faceted form of the crystal. We must therefore carefully distinguish two modes of differentiation; that in which the determinism is predominantly intrinsic and that in which it is mainly extrinsic; that which is chiefly due to determinate synthesis, and that which is chiefly the result of free interaction; that which is exemplified by the growing crystal, and that which is typified by the deepening valley, or by the circling planets of the solar system.

So much must suffice for the differentiations and interactions in the inorganic sphere. We now pass on to the organic. The origin of protoplasm is the battle-ground of the creeds. All that science can tell us is that the antecedent conditions of its genesis are unknown. But with so much that is unknown to science it

surely ill beseems us to build too much upon this. It is but our familiarity with the genesis of the crystal that affords any justification for the supposition that this is the outcome of a natural evolution while the genesis of protoplasm is not so. Science can tell us in the one case no more than in the other the *why* of its existence; while even of the *how* of crystalline architecture science can only say that, given such and such conditions, it appears. Of protoplasm we may likewise say that under certain conditions, at present unknown, it appeared. Those who would concentrate the mystery of existence on the pin-point of the genesis of protoplasm, do violence alike to philosophy and to religion. Those who would single out from among the multitudinous differentiations of an evolving universe this alone for special interposition would seem to do little honor to the Divinity they profess to serve. Theodore Parker gave expression to a broader and more reverent theology when he said: "The universe, broad and deep and high, is a handful of dust which God enchants. He is the mysterious magic which possesses"—not protoplasm merely, but—"the world."

Theological implications do not, however, here concern us except as the expressions of that broader philosophy of our day which sees in the origin of protoplasm an example of the process of differentiation which is characteristic of evolution at large. Assuming therefore that protoplasm originated through determinate synthesis, under conditions at present unknown, it is clear that its characteristic properties are primarily of what we have termed the intrinsic type. Like the properties of other chemical compounds they are its natural dower. But they are preeminently such as afford the fullest and freest opportunities for that interaction which leads to differentiation of the extrinsic type. Its capacity of increase by assimilation, its instability combined with a power of recuperation, its tendency to corpuscular division, combined with a tendency for the corpuscles or cells to become incorporated in a complex organism, wherein not only is there a differentiation into diverse constituents, but a constant interaction among the several parts and with their environment; all this affords opportunity for a continuous series of transformations and redistributions of energy,

which give to living beings their wonderful plasticity and their extraordinary variety. Seeing therefore how closely inter-related are the intrinsic properties of protoplasm and the extrinsic interactions which their special character renders possible, it is scarcely a matter for surprise that biologists find it a matter of exceeding difficulty to assign to the two modes of differentiation, intrinsic and extrinsic, their respective rôles in the drama of organic evolution.

That this evolution is determinate, in the widest sense of the word,—that every stage in the development of any organism could be traced, had we sufficient knowledge and mental grasp, to assignable antecedents—is an assumption which the science of biology must accept, or forfeit its claim to be regarded as a science. But whether, or in what degree, those complex differentiations which we term “varieties” are due to intrinsic tendencies is a question concerning which there is much diversity of opinion. Mr. Henslow has adduced a number of instances, among plants, which show that changes of soil and climate induce special and often adaptive alterations in the character and habit of the roots, leaves, and other parts. The well-known and oft-quoted observations of Schmankewitsch seem to show that transference of certain brine-shrimps to water of different salinity induces in their offspring a change of form in the tail-lobes and a change of character in the spines which they bear. Abundant illustration might be given of such modifications in developing organisms subjected to a new environment—modifications of a special kind and of a determinate nature. It is true that we are ignorant how far, in the absence of natural selection leading to the survival of coincident variations, these modifications of structure are inherited. But so far as the individual is concerned the determinate character of these differentiations is noteworthy. Still all we can say is that they seem to be due to some internal power of responding to external conditions in a special way. How that internal power was developed we cannot pretend to know.

The effects of interaction are admirably illustrated by the process of fertilisation on which modern research has thrown much light and is destined, we may hope, to throw more. Taking one of

the higher multicellular animals as an example it has been shown that, within the nucleus of the cell, remarkable changes occur during the process of division. A thread of deeply-staining substance breaks up into a number of curved rods,—the number being constant for the particular organism,—and these, grouping themselves in a definite figure, split along their length, thus giving two sets of curved rods, one set for each daughter nucleus, in the two cells which arise by division. But in the unripe reproductive cells the deeply-staining substance is arranged in so-called tetrads or groups of four units, there being half as many tetrad groups as, in the ordinary cells of the organism, there are curved rods. These immature reproductive cells undergo divisions, during which each tetrad is first halved, giving a dyad, and then halved again, giving a single unit. And in this way each ripe or mature reproductive cell contains half as many of these units of deeply staining substance, as is characteristic of the cells of the organism. In the process of fertilisation the reproductive cell from the male parent unites and fuses with that from the mother organism; a new nucleus is formed by grouping of the units; the normal number for the species is reconstituted; and by the interaction of these units the course of development of the organism which results from the fertilisation of the ovum would seem to be guided.

But the offspring even of the same parents are not all precisely alike. Partly by differences of the inherited substance, partly by differential interaction, they vary around a common mean. And as they develop they are subject to those wider interactions among each other, and in relation to their environment, which Darwin summarised in the phrase, the struggle for existence. The weaker and the less fit are eliminated. Natural selection plays its part. The unfavorable varieties die without mating; the fittest survive to procreate their kind. These differentiations are lost to the race; those are perpetuated. Evolution in the organic sphere is determinate; but, in the current interpretation, it is of the valley type. The elimination which results in natural selection is the denudation of the continent of life. Those organisms which, from superior resisting power, outlive its repeated shocks, stand forth, like the

hills, as survivals in the organic world. The more yielding types have succumbed; one must supply by inference the missing material which once occupied the valley gaps.

But is the determinate evolution of organic life entirely of this valley type? Have we left the intrinsic determination of the crystal type far behind? Has determinate evolution through indefinite interaction altogether superseded determinate variation through the subtle compounding of intrinsic tendencies? We do not know. Some biologists, whose confidence in the all-embracing efficacy of natural selection is equal to every strain, deny the occurrence of determinate variations; which is bold. Others demand more evidence; which is not unreasonable. Others again contend that variation is rendered determinate through the inheritance of modifications acquired by the parents; which is open to question. Yet others assume that intrinsic variations, definite in direction, are the main determinants of organic progress; which is speculative. Some combine two or more of these hypotheses, and see in organic evolution the result of the co-operation of diverse factors; which is a compromise. To those who dislike indefiniteness of conclusions such diversity of opinion is distasteful. To those who love the din of controversy it affords the pleasing spectacle of contending parties. In any case, in the present position of biological science, it would seem to be inevitable. And we must leave the problem open for the science of the future to solve. This only may be said, that granting the determinate evolution which natural selection helps us to explain, there remain cases which, to say the last of it, present difficulties to the candid inquirer. That all the varieties of butterfly coloring and ornamentation, that all the forms and tints of molluscan life, that all the pencillings of birds' plumage, that all the complications of mammalian tooth-structure,—that these and many other differentiations which are met with in the organic world, are due solely to the action of natural and sexual selection, demands a faith which verges on credulity. And bold must be he who dares to deny that none of these can be due to an intrinsic determinate synthesis such as that to which the protoplasm, whereof these marvellous structures are the products,



owes its origin. But that modesty which is so conspicuous a trait in the modern biologist, should prevent him not only from denying but also from asserting, in the absence of definite evidence, that determinate synthesis is a factor in organic variation.

It is clear, however, that if natural selection be an important agent in progress, and if the variations which are presented to its action in any existing organism be determinate, they may still owe their definite nature to a process of selection. For the very fact that certain variations are selected for survival may foster further variations in a similar direction and give them the appearance of being intrinsically determined. While other variations are checked by the elimination of the organisms in which they occur, these are allowed free play. The existence of a tendency to vary in certain directions cannot, therefore, of itself be taken as sufficient evidence that this tendency is independent of natural selection, since variability in special lines is itself subject to selection. It must be shown that selection is either inoperative, or incapable of producing the particular differentiation in question, before biologists of the school of Mr. Wallace and Prof. Weismann will admit that determinate variation is of the crystal type. Enough has, however, been said to show how exceedingly complex is the problem with which we have to deal, and to justify an attitude of suspended judgment.

When we add to the difficulties which arise from the present and past effects of that interaction with the environment which renders natural selection possible, the further difficulties which arise from the interaction of the constituent parts within the organism itself we realise yet more fully the extreme complexity of the problem of organic evolution. That every cell in the living animal is in vital relation with its companion constituents of the body corporate, is too familiar a fact to need illustration. We may more profitably adduce an example from the early stages of development of the little sand-lance or *Amphioxus*. The fertilised egg-cell undergoes division first into two, then into four, eight, sixteen cells, and so on, in the successive stages of cleavage by which the constituent corpuscles of the embryo are subdivided. Now if we fix our attention on the first division of the fertilised ovum into two



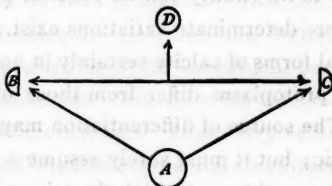
cells, we have here the initial step in a process of continuous differentiation. Each of these two is the parent of half the constituent corpuscles of the completed organism. But this normal differentiation would seem to be dependent upon the continued interaction of the first two cells and their subsequent products. For if, so soon as the ovum has divided, it be shaken somewhat roughly in water, so as to separate the two cells and thus prevent their interaction, each separate cell divides and subdivides in such a way as to form a complete and perfect, but abnormal, embryo, differing from the normal only in the fact that it is half the usual size. The fate of the two cells is therefore dependent on the presence or absence of their interaction. If they remain in their normal relation, each gives origin to half an embryo: if they are separated and interaction be prevented, each gives origin to a complete embryo of half the normal size. And the lesson of the *Amphioxus* is one that the study of organic development teaches in many forms but all leading to one conclusion; that protoplasmic differentiation is inseparably connected with interaction. It is here that the analogy of the crystal completely fails in adequacy and reach. For the crystal is relatively stable and unyielding. Some interaction there is between the developing mineral and its environment; but it is comparatively slight. Protoplasm, on the other hand, is relatively unstable and plastic. Its capacity for interaction is a characteristic property, essential to its vitality and its peculiar modes of differentiation. If therefore determinate variations exist, they must differ from the variational forms of calcite certainly in no less degree than the properties of protoplasm differ from those of crystalline carbonate of lime. The source of differentiation may be in greater or less degree intrinsic; but it must surely assume a form indefinitely more complex than anything of which the mineral kingdom gives us any premonitory indication.

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In passing to the metaphysical implications which underlie the scientific study of evolution, we must remember that science endeavors with more or less success, but not without many confes-

sions of ignorance, to describe phenomena in terms of antecedence and sequence. Metaphysics, on the other hand, accepting the sequences ascertained by science, seeks, not only to explain the manner of their connexion, but to bring them into fruitful union with conclusions reached in other spheres of thought. The biologist as he patiently traces the developmental history of this or that organism, or of life on the surface of our planet, has no occasion to consider what relation his inquiries bear to those of the philosopher who seeks to explain the genesis of experience. It suffices for him to describe the phenomena as occurrences in a world, the objective reality of which he accepts with perfect confidence. The dualism of analysis forms the platform from which he starts, and it is no part of his business to examine its foundations. He leaves all this to the philosopher. And it now remains for us to see whether that differentiation and interaction which we have seen to lie at the very root of our conceptions of evolution, serve in any way to supplement the conclusions to which we have already been led. For if the assumptions of metaphysics are to have any validity, they must keep in close and vitalising touch with the generalisations of science.

Let us, at the risk of offending those for whom such representations are rather a hindrance than a help, throw into diagrammatic form what appears to be the essence of the evolution process:



The lower circle *A* stands for the relatively homogeneous substance prior to the differentiation which is indicated by the ascending divergent lines. The products of differentiation are represented by the semicircles *B*, *C*, on either hand, and the result of their mutual interaction by the upper circle *D*, which represents a new and more complex unit. Let *A* for example represent the fertilised ovum of

Amphioxus, and *B*, *C* the differentiation involved in repeated cell-division. Then by the mutual interaction of these differentiated products a new unit *D*, the developed Amphioxus, is produced. Such a scheme of course sets forth rather the type to which evolution ideally conforms than what is actually observed in any particular case. Science, as we have seen, is unable to trace back the chain of antecedents to the homogenous substance which is the ideal starting-point. If we take the diagram to illustrate the differentiation of the fertilised ovum of Amphioxus into two differentiated and interacting cells, we must not suppose that the fecundated egg with which we start is more than relatively homogeneous. Its nucleus is itself the product of the union of the already-differentiated nuclei of parental cells, the interaction of which is clearly shown by their behavior within the fertilised ovum. Nay more, the genetic continuity of protoplasm opens up to our mind's eye a vista down an indefinitely prolonged avenue of differentiations and interactions stretching far away back into long distant times. But every step in the evolutionary process was taken in relative conformity to the scheme which the diagram is intended to represent. Innumerable differentiations are now taking place concurrently; and the interactions of their products present a bewildering complexity which we can only grasp piecemeal, by fixing our attention now on this and now on that relationship between the interwoven threads in the fabric of the phenomenal universe. It is only by generalisation, and by carrying to its ideal limit the conception which thus takes definite form, that we reach the simple but comprehensive scheme of a diagram. It thus becomes an abstract plan or formula which may be applied to any concrete example of differentiation. Whether we take the supposed evolution of any two elements from protyle, of the sun and the earth from fire-mist or meteoric dust, of the earth and the moon as interpreted by Mr. George Darwin, of the crystal from its solution, of the orthoclase felspar from the granitic magma, of the first speck of protoplasm from the medium which held its constituent elements, of each pair of daughter-nuclei from the nucleus of the parent cell,—everywhere we find that the formula fits the facts; everywhere we see diverse manifestations of

the same fundamental process—differentiation accompanied by interaction.

It may be said that the coalescence of the products of differentiation is by no means a universal fact. No doubt, if we assume hydrogen and oxygen to be the differentiated products of protyle, they may, under the appropriate conditions, combine to form water. But the differentiated cells of the fertilised *Amphioxus* ovum remain separate and do not coalesce; and ever since the moon and earth were torn asunder, they have remained apart and have not again combined to form a new and more complex unit. Unquestionably the continuance of direct interaction depends on circumstances and the conditions of the case. As we have seen however in the development of *Amphioxus* the two cells, though they do not coalesce, continue to influence each other in such a way that under normal conditions they form parts of a more complex whole, the development of which is determined by their interaction. And the same is true of the earth and the moon. They form an interacting system, and this is all that the circle *D* is intended to represent. Still there are many cases in which the differentiated products become relatively independent of each other. The two daughter-amœbæ into which the parent organism divides, go each on its several way, and do not interact to any appreciable extent. And in innumerable cases the products of one differentiation react on the products of another differentiation. To attempt to represent this in diagrammatic form would involve a complexity which would be so bewildering as to defeat the object of a schematic formula. Let the diagram therefore be taken to represent the general fact of differentiation and the not infrequent interaction of the differentiated products under the appropriate circumstances. In brief let it stand for the two root-ideas of the conception of the evolutionary process, which we have seen to be first, differentiation, and secondly, the interaction of the differentiated products.

What then is the bearing of this conception on the problem of the genesis of experience? We have seen how, under the polarising influence of analysis, experience assumes a dual aspect, with its objective phenomena and their underlying causal connexions on

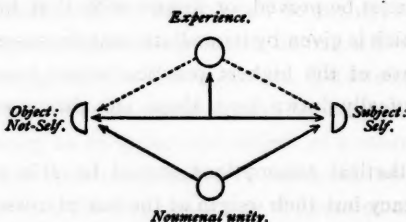
the one hand, and its correlative subjective phenomena and their underlying causal connexions on the other hand. But we have also seen that this analysis of experience is insufficient to account for its genesis. Analytic dualism may enable us to distinguish subject and object as diverse aspects of experience. But it gives no explanation—it does not even afford the germ from which may be developed an explanation—of the manner in which this experience with its diverse aspects originates. Hence we assumed a persistent and independent cause, regarding it as a postulate of rational thought. On this assumption experience is the effect of the interaction of the self and the not-self. We may still say with Huxley, however, that “neither of the existence of ‘self,’ nor of that of ‘not-self’ have we, or can we by any possibility have, any such unquestionable and immediate certainty as we have of the states of consciousness which we consider to be their effects. They are not immediately observed facts, but results of the application of the law of causation to those facts. Strictly speaking, the existence of a ‘self’ and of a ‘not-self’ are hypotheses by which we account for the facts of consciousness. They stand upon the same footing as the belief in the general trustworthiness of memory, and in the general constancy of the order of nature—as hypothetical assumptions which cannot be proved, or known with that highest degree of certainty which is given by immediate consciousness ; but which, nevertheless, are of the highest practical value, inasmuch as the conclusions logically drawn from them are always verified by experience.”

But hypothetical assumptions should be able to justify not only their efficacy but their origin at the bar of reason. And the philosophy of evolution appears to afford such justification of the assumed independence and interaction of self and not-self. Applying our evolutionary formula in this region of metaphysical thought we find that it is not less helpful here than it is in the field of scientific inquiry. Evolution is found to supply a key not only to the problems of science but also to those of philosophy. A monistic interpretation on a single comprehensive plan is reached. Analytic dualism is supplemented by the dualism of differentiation which



may be traced downwards into the monistic unity from which the differentiated products have arisen. This monistic unity is represented in our diagram by the lower circle *A*, which differentiates into the self and the not-self, *B* and *C*, from the interaction of which arises the sphere of experience *D*. The self and the not-self have all the independence of differentiation together with the unity which is implied in their derivation from a common source. And the manner of their interaction, (being dependent on a wide variety of circumstances due to multitudinous differentiations within the not-self, with answering diversities in the self), affords ample opportunity for all the complexities which are disclosed by analysis in the sphere of sense and of thought. For here too the interaction only takes place under the appropriate conditions which we term the occasions of experience.

It only remains to indicate as briefly as possible the relation which the diagrams of the earlier part of this essay, representing the dualism of analysis, bear to that which formulates the process of evolution with its dualism of differentiation. It consists essentially in the identification of the subject and object of analysis with the self and not-self of differentiation. Combining our diagrams we have the following scheme :



The lower circle represents the monistic unity prior to dualistic differentiation ; hence arises the self on the one hand and the not-self on the other, which by their interaction give origin to experience, including both sense and thought. The dotted lines express the analysis of experience into object and subject coterminous with the not-self and the self of differentiation. But whereas the subject and object of analytic dualism are dependent on the occasionalism



of experience, the self and the not-self are persistent so long as the differentiation holds.

The philosophy of evolution thus extends the conception of metaphysical cause which we reached in the foregoing essay. The differentiation of the cosmos, and the interaction of its differentiated products, are to be regarded as the manifestations, under conditions of time and space, of an underlying activity which is its cause. For the time and space elements are attributes of the phenomenal manifestation, not of the noumenal cause. It is true that, as human beings with limited powers of grasping the nature of metaphysical existence, we are forced to speak of differentiation as manifested in time and of interaction as manifested in space. But if the conclusions reached in the last essay are valid, the metaphysical cause, as such, is timeless and spaceless,—eternal and infinite. How this can be perhaps passes the wit of man to conceive; for to do so it seems necessary to transcend the conditions under which our experience is given. We cannot, however, discuss the question here; and it must suffice to say that the underlying metaphysical activity, as cause, is neither the product of evolution nor its precursor in time; it is that timeless omnipresent existence in and through which evolution is rendered possible.

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## GNOSTICISM IN ITS RELATION TO CHRISTIANITY.

GNOSTICISM is commonly regarded as a Christian sect, but it is of far wider significance, and its proper appreciation will throw a new light on the origin of Christianity and the early history of the Church. Gnosticism is a religious movement which is characterised by a seeking for Gnosis or enlightenment for the purpose of finding salvation. Its interests are concentrated upon the psychological problems of the soul and the metaphysical problems of the origin and end of the world, and when we bear in mind that in all its essential features it antedates Christianity we shall at once recognise it as a period of *Sturm und Drang* which immediately preceded the establishment of the Christian Church and paved the way for the acceptance of a religion whose claims and ideals, in contrast to the national religions of antiquity, were not only universal and supernational but at the same time personal and spiritual. Gnosticism is full of vagaries, but it is possessed of a high ideal, and we shall appreciate its good sides if we regard the movement as a problem which stirred the human mind, rather than as a solution. The ideal which Gnosticism presented is great, but the efforts made by Gnostics for its realisation must upon the whole be regarded as failures, and the Christianity of the Church is the result of the spiritual fermentation of Gnosticism. Christianity offers an answer to the questions of Gnosticism, and is in this respect itself a Gnostic movement. We shall see that Christians for a long time actually called themselves Gnostics, and some Church fathers, such as Clement, use the name Gnostic in the sense of

Christian. Thus it would be more correct to speak of Christianity as a branch of Gnosticism than to characterise Gnosticism as a Christian sect. But it was natural that the Christian Church, with increase of power, should begin to condemn all non-Christian Gnostics. By and by the very name began to be repudiated, and the kinship that obtained between the Christian solution of the religious problem and other Gnostic solutions lead to the idea of treating Gnostic teachers as heretical Christians.

While pointing out the pre-Christian existence of the Gnostic movement, we do not intend to slur over the differences that exist between the pre-Christian and post-Christian Gnosis; on the contrary, while we insist on their historical continuity, we would emphasise their difference, which is obvious and striking. The spread of Christianity marks an epoch in the evolution of the conception of the Gnosis inasmuch as the Christian Gospel forced a new issue upon the various Gnostic schools which could not be left unheeded.

The fact that Gnosticism is older than Christianity has never been denied, but, strange to say, its importance has never been fully realised. Hippolytus enumerates a number of Gnostic sects which were older than Simon Magus, which means older than Peter and Paul; and even the old-fashioned among our Church historians, men like Mansel, not to speak of Neander, recognise this fact. Mansel, for instance, says:

"There was in fact an earlier Gnosticism founded on the perversion of the Law, as there was a later Gnosticism founded on the perversion of the Gospel."<sup>1</sup>

Notwithstanding this concession, Gnosticism always appears to us as post-Christian because these Church historians regard Gnostic heresies as a perversion of the Gospel truth, while in fact they are independent attempts, failures though they may be, at solving the religious problems of the age.

In opposition to the narrow views of antiquated dogmatists, several attempts have been made to turn the tables and exhibit the sectarian character of the early Christian Church; but these defenders of the Gnosis, as a rule, overestimate the philosophical

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<sup>1</sup> Mansel, *Gnostic Heresies*, p. 75.

value of Gnostic philosophers. They either hanker after the mystical themselves, or forget that even the best of the Gnostics were fantastical and erratic. The methods of the Gnostics resemble a chase after will-o'-the-wisps, and their results are mostly vain speculations and vague dreams. Apollos and Simon Magus may have been more brilliant and more ingenious than Peter and Paul; but the latter were more sober.

There were enough most lamentable vagaries current among the early Christians. There was the belief in the imminent advent of Christ shared even by Paul, to which superstition many thousands fell victims by neglecting the duties of life. There was the communism of the Church at Jerusalem which made of their members destitute beggars, for whose benefit collections had to be taken up among the wealthier Christians of Greece. There was the chiliastic notion, with its apocalyptic excrescences. There was the belief in the resurrection of the material body from the grave, the restitution of the very flesh itself, most seriously insisted upon even in the Apostolic creed. But in spite of all these aberrations Christianity, as compared with the theories of the Gnostic teachers, was sobriety itself. It was at the same time popular and practical, presenting its lessons in the concrete form of the Gospel story, which rendered it definite and human (a most essential condition for a religion to be acceptable) and yet allowed within certain circumscribed limits a sufficient liberty to speculation through the possible interpretation of the significance of the Savior's personality. Hence Christianity became at once an issue in the Gnostic movement of the first century, forcing the various schools to restate their doctrines and to give their verdict as to the nature of the facts asserted by the Christians concerning Jesus of Galilee.

We propose here to review the field once more in the light of these considerations, and hope that we shall thus offer a contribution toward a better comprehension not only of the origin of Christianity but also of its purpose in the economy of the religious development of mankind. Christianity is not an accidental formation, it is a necessary result of the evolution of thought. The history of the Church is, especially in its beginning and during the

Middle Ages, a sad medley of vagaries, intrigues, usurpations, and crimes, but through all the balderdash of dogmatic speculation, of mystical trash, of visionary theorising, even in spite of the heresy trials, Bartholomew slaughters, and *autos da fé*, there goes the red thread of an upward aspiration which slowly, very slowly, leads to better and clearer conceptions, in constant search of the true Gnosis.

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The word Gnosticism is derived from *γνῶσις*, knowledge, or scientific comprehension. The term is frequently used in its general sense, while the history of its special significance begins with Neo-Platonic philosophers. Plato uses the words *γνῶσις* and *γνώστικὴ ἐπιστήμη*, the former in the sense of "scientific comprehension," and the latter in contrast to practical skill as "theoretical knowledge." A new notion of Gnosis originates with the rise of the Neo-Platonic period when a philosophical mysticism began to find the key to the problems of the world by intuitions and visions. Now Gnosis was no longer knowledge but metaphysical or mystical insight, which comes in an unaccountable way by inspiration. But the main characteristic feature of Gnosticism was psychological and soteriological. Almost all Gnostic philosophers and teachers from Philo down to Plotinus are dualists who look upon the soul as a spiritual entity temporarily entangled in the world of matter and longing for a return to its source. Material existence is in their opinion the cause of sin and evil, and to be delivered from the bondage of the body was the final aim of the soul and an end devoutly to be wished for.

Gnosticism is full of Oriental notions, and under Gnostic influences the same religious ideals, so foreign to both the Greeks and the Jews, which had gained recognition in India about six hundred years before our era, began to spread in the West. Indeed, we shall scarcely be mistaken in regarding a closer contact with India as the beginning of the Gnostic period. The nations of antiquity had developed each for itself in close seclusion, which in several instances was guarded with a rigid religious sanctity and with patriotic narrowness. They came in contact with one

another, but shrank from any friendly exchange of thought. The Assyrians conquered the Asiatic nations, but they would have deemed it beneath their dignity to learn from them, or to accept even the best features of other peoples' national peculiarities. Even the Greeks, the broadest and most civilised nation, showed an unconcealed contempt for everything that was not Greek, and Alexander the Great became very unpopular among his soldiers through his sympathy with Orientalism. The Jews, as we know now through the excavations in Mesopotamia, learned much from their conquerors while residing in Babylon, but they learned in spite of themselves; Babylonian philosophy and civilisation was forced upon them in their captivity; they were surrounded by Babylonian influences and accepted unconsciously that which at once recommended itself as good. They inhaled it with the air and knew not how they got it, which explains the fact that they never gave credit for it. On the contrary: while they adopted such institutions as the Sabbath and accepted the purer monotheistic views of educated thinkers, they put upon the Babylonian temple-worship the worst interpretation, probably the interpretation of the isolated philosophers and freethinkers of Babylon and denounced the popular religion of the country as gross idolatry.

The narrowness of national seclusion which prevailed generally until the days of Alexander the Great yielded gradually to a mutual recognition under the constant increase of a friendly exchange of thought. Greek as well as Indian views met in Syria and were compared with the faith of the Jews, producing a powerful fermentation in the religious convictions of the people.

The Jews who by some national instinct and by an inborn commercial talent spread among the nations long before the destruction of Jerusalem in 70 A. D., living, as it was called, in the "diaspora," played a most important part in this period, for they were not mere bankers and traders, they served also as the most important channels through which Indian and Greek thoughts flowed to mingle with the Jewish belief in new and fantastic combinations of religious ideals, prophecies, and meditations.

There is an opinion which prevails at present that Buddhism



had been imported from India and ought to be regarded as the mother-religion of Christianity; but in spite of the innumerable arguments that can be presented in favor of this theory,<sup>1</sup> the conclusion that Buddhism reached Palestine at, or shortly before, the advent of Christ, and that it must be held responsible for the origin of Christianity, is not admissible; for all the peculiarly Buddhistic teachings, especially the doctrine of the anatman or non-existence of the ego-soul, are obviously absent in Christianity. The parallelism that actually obtains between Buddhism and Christianity can be explained otherwise and proves only indirect relations between these two systems of faith. We may fairly assume that Hindu views reached Syria in vague and frequently self-contradictory forms, which may have been as much Brahmanical, or Jain, as Buddhist. Buddhist teachers or monks are never expressly mentioned or quoted, but the naked ascetics, or, as the Greek called them, Gymnosophists, are frequently alluded to. There are reminiscences of the Samkhya philosophy as well as the Vedanta. This much is sure that the Buddhist faith did not predominate, but came in only for its share with the rest; and in this it offered, together with certain ethical maxims, for instance the eradication of hatred (which, however, is not exclusively Buddhistic), merely such incidental items as Jataka tales and parables. But we do not meet with the main solution of the religious problem, which alone can be regarded as typically Buddhistic.

Syria is apparently the home of those Gnostic sects which by their own choice called themselves Gnostics, and the seeds of Gnostic views were, probably through Jews, transferred from Syria to Alexandria and to Asia Minor, where the new doctrines proved attractive and apt to revolutionise the traditional ethics of the people. Formerly procreation of children was regarded as a duty and the acquisition of wealth as a blessing, now it became known that there were religious men of great dignity who sought salvation in absolute chastity and poverty. The highest morality of the In-

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<sup>1</sup> For the argument which the writer has collected see his book *Buddhism and Its Christian Critics*, pp. 171-236.

dian anchorite was not a victorious self-assertion in the struggle for existence, but a surrender of all strife and a radical renunciation of self.

The spirit of the times showed itself in the foundation of various religious societies which originated somewhat after the fashion of the modern theosophical movement. There were bands of students in almost all the larger cities who investigated the doctrines of salvation and immortality, and many of them practically applied the new principles and lived lives of absolute poverty and chastity. It is not to be expected that the names and history of these religious societies (most of which were temporary and local movements) should be preserved except where they came into collision with an established faith that combated them and denounced their doctrines as heretical, or where the interest of a sympathetic thinker and author recorded their aspirations for the benefit of posterity. The large mass of the people who followed the various pursuits of life in wonted routine, naturally would look upon the practices of such odd people as a ridiculous mania and nothing else. It is therefore a matter of course that the historical records of the movement are not complete. There are many vague hints, but definite and reliable information is rare. What we have, however, is important and sufficient to establish the character of the movement as a powerful religious fermentation and a groping after the deliverance of the soul from the body of death.

The Gnostic aspirations are partly lofty and philosophical, partly ethical, going to the extreme of rigorous asceticism, partly fantastical, evincing a belief in visions and miracles after the fashion of common conjurers.<sup>1</sup>

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<sup>1</sup> An interesting Gnostic document of the latter class is a papyrus which is now MS. No. 10,170 of the British Museum, the second part of the same papyrus being in Leyden. It has been published in *fac simile* and partly translated from a Koptic dialect into German by J. J. Hess of Freiburg in Switzerland. The translated passage is an incantation to God to reveal Himself. It is extremely fantastic and superstitious. Mention is made in it of a lamp which is questioned, reminding one of Aladdin's lamp. Professor Hess says "the papyrus is a book of magic of the pagan Gnostics, the precursors of the Christian sects of the same name." The MS. dates probably from the second century of our era, but is apparently based upon ancient traditions. It shows some Jewish but no Christian influence.

The Cabala shows many influences of Gnosticism which must be referred to un-Jewish sources. Its main doctrine, which is the theory of the *sepiroth* or emanations, is Gnostic, and the belief in angels and archangels or spiritual presences through which God operates, apparently derived from Babylon, can be met with among almost all Gnostic schools. Especially the idea of the archetypal man as the highest Deity reminds us of similar conceptions among the Ophites and in the doctrines of Simon Magus. But our attention must first be concentrated upon those Gnostic notions which are well attested as pre-Christian and continued in the beginning of our era as competitors of the doctrines of the Church.

Philo, an Alexandrian Jew, a contemporary of Christ, appears to have been one of the maturest minds among the searchers for the Gnosis.

Philo does not call himself a Gnostic, but in all particulars which constitute Gnosticism he was a genuine Gnostic. He believed in ecstatic visions as the directest means of attaining union with God, the source of all souls, from which the spiritual powers emanated. He tried the ascetic life of hermits himself and expected salvation through liberation from the body. With all this Philo remained a Jew. In his *Vita Mosis* he places the great law-giver and founder of the Israelitic religion far above the sages of the Greeks, representing him to be the incarnation of the supreme *logos* of God; and when the Jews in the year 40 of our era sent an embassy to Rome to persuade the Emperor Caligula to abstain from claiming divine honor from the Jews, they chose this venerable philosopher of Alexandria, who was then well advanced in years, as their spokesman.

Among the books which bear Philo's name there is one entitled *De Vita Contemplativa*, which describes the life and manners of a sect called the Therapeutæ, i. e., "those who minister," which may mean either Healers or God-worshippers. These people retired from the world and led an ascetic life near the Mœris Lake. Bread, water, and salt, was their sole food, which was sometimes seasoned with hyssop. They remained in isolation for six days, devoting themselves to contemplation and austere penances, and

giving the seventh day (seven being a sacred number with them) to common prayer and hymn-singing. The authenticity of the book has been doubted of late by Lucius, who believes that it is the work of an anonymous author of the third century whose intention was a glorification of monastic life, which in those days rapidly began to become a Christian ideal.<sup>1</sup> But would not an enthusiastic Christian monk have preferred to derive the monastic system directly from Christ or from one of the apostles? Could the thought of attributing the book to Philo and of representing the institution of these ascetics as older than Christianity originate in a Christian mind? On the other hand, we must consider that the Essenes and Nazarenes, whose historical existence is unequivocal, offer a parallel which proves that the monastic ideal of the Therapeutæ existed long before the Christian era, and was, beginning with the second century B. C., a very powerful factor in the religious life of many thousands of earnest people. Holtzmann says (*Einleitung*, I., p. 100) that even if the *Vita Contemplativa* were not genuine the Therapeutæ might remain historical. At any rate, we might as well reject the antiquity of all Hindu scriptures in which monastic institutions are mentioned if we must regard monasticism as a typically Christian ideal.

Monasticism became a Christian institution in the third century, but it existed as a Gnostic ideal before that time. It is one of the factors which belong not merely to the third century A. D., but begin to show themselves in the *Sturm und Drang* period preceding Christianity. Indeed, the Christianity of the first and second centuries did not favor but criticised and condemned monkish ethics. Tertullian, who lived about 200 A. D., contrasts (in his *Apol.*, XLII.) Christianity to the monkish aspirations of his time, which he regards as decidedly un-Christian, saying, "We are not

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<sup>1</sup> The idea of the spurious character of Philo's *De Vita Contemplativa* is set forth in the pamphlet of P. E. Lucius, *Die Therapeuten und ihre Stellung in der Geschichte der Askese*, Strassburg, 1879. His theory is based on the gratuitous assumption that the Therapeutæ are an isolated phenomenon of Philo's age and should be explained as a Christian forgery of later date. For a thorough refutation of his theory compare Fred. C. Conybeare's *Philo About the Contemplative Life*, Clarendon Press, Oxford, 1895.

Indian Brahmins, or Gymnosophists, dwellers in woods, or exiles from life; we sojourn with you in the world."

The Essenes<sup>1</sup> as described by Josephus, Philo, and Pliny were an ascetic sect whose main settlement of about four thousand members was near the Dead Sea. They practised chastity and had all things in common. They were pious Jews but abstained from the bloody sacrifices of the temple service, suffered no slavery, abstained from strong drink, and had a ritual of ablutions and baptisms. They rejected the oath and possessed a literature of sacred books of their own, which, together with their esoteric doctrines and their symbolical interpretation of the Bible, were kept secret. Their novices had to make a formidable vow before they could be admitted to membership. Several of their institutions, for instance the ordinance to abstain from the use of oil for unguents, reminds us of the same Buddhist precept; their reverence for the sun, of Parseeism; their belief in the pre-existence of the soul, of Orientalism in general. It is generally recognised that their ascetic principles

<sup>1</sup> The word Essene, or Escees (in Greek Ἐσσηνοὶ and Ἐσσηνοί, in Latin *Esseni*, is derived by Ewald from שׁמרים preserver, guardian, a rabbinical term, because they called themselves "watchers, guardians, servants of God." Others derive the word from נָפַח (to heal). Both derivations would remind one of the Therapeutæ. The root נָפַח (to fly, to take refuge) seems to be most probable, philologically considered, especially as the word is used in the sense in which the Buddhist takes refuge in the Dharma, illustrated in such phrases as לָקוּחַ בְּיָדֵינוּ (to take refuge in God), Psalms ii. 12; v. 15; vii. 2; xxv. 20; xxxi. 2; xxxvii. 40, etc. A fourth derivation is from שָׁמַר (to be pious, to be enthusiastic; to be zealous in love, Philo says they are called "Essenes" on account of their holiness *παρὰ τὴν δαύνην*) and uses the term *δαοι*, i. e., "the saints," or "the holy ones," as a synonym for Essenes. This hint, however, is of little avail, as it would suit both these latter derivations.

The word Ebionites עֲבִיּוֹנִים means the poor.

The name Nazarene, Ναζωραῖος, must not be confounded with Nazarite נָזִיר an abstainer, who as a visible sign of his vow let his hair grow, but it may be derived from the root נָזַר in the sense of "Separatist." The Niphal of the verb means "to separate oneself from others; to abstain, to vow, to devote oneself to."

The early Christians seem to have been most closely allied with the Nazarenes, for as early as in the year 54 of our era (see Harnack's *Chronologie*, p. 237) St. Paul was accused by the Jewish authorities as being a ringleader of the sect of the Nazarenes. (Acts, xxiv. 5.). The name has nothing to do with the name of the town of Nazareth which was presumably written with a ז (*Tsaddi*) or sharp *ts* sound. The name Nazareth is nowhere mentioned in its original Aramaic form, and occurs only in the New Testament whence it made its way into the patristic literature of later Christianity.

show Oriental and un-Jewish influences, but we must concede that a limited asceticism was not altogether foreign to Judaism, where it showed itself in the vows of the Nazarites, who let their hair grow as a sign of consecration.<sup>1</sup>

There are reasons to believe that the Nazarenes and Ebionites are Jewish sects which antedate Christianity. The Ebionites derived their name from the Hebrew word עֲבִיּוֹן (*ebjôn*), i. e., poor, which may have been characteristic of their moral ideal of renouncing property. They believed in the coming of the Kingdom of God on earth, which in later days was called the millennium. Their religion was a gospel of the poor and for the poor. Origen informs us that in his days there were two kinds of Ebionites, such as affirmed and such as denied the supernatural birth and nature of Jesus. The Nazarenes are frequently identified with the Ebionites, and the word may be another name for the same sect. The etymology of the term is obscure, but can scarcely be regarded as another form for Nazarite; nor has it anything to do with the town Nazareth. The early Christians were called Nazarenes by the Jewish priests,<sup>2</sup> which suggests the idea that the early Christians (who at any rate on joining the congregation renounced all

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<sup>1</sup> The same Lucius who regards the *Vita Contemplativa* as the forgery of a Christian monk, attempts to deny that there is any foreign influence traceable in the doctrines of the Essenes. See his pamphlet *Der Essenismus in seinem Verhältniss zum Judenthum*, Strassburg, 1881. He believes that the Essenes are in name and in fact identical with the Assideans mentioned in the first book of Maccabees ii. 42 *et alias*, explaining their name as the חַסִּידִים *hasidim*, and which again is the same as Ἀσιδαῖοι or Χασδαῖοι. This granted, he removes all difficulties by referring the Gnostic features of the Essenes, such as their reverence for the sun, their celibacy, their temperance in eating and drinking, their communism, their doctrine of guardian angels, of the immortality and the transmigration of the soul, etc., to those features of the Old Testament Apocrypha, especially the Book of Enoch, the Psalms of Solomon, and Leptogenesis, which are obvious symptoms of Gnosticism. He further believes that their objection to bloody sacrifices was simply a notion that the second temple was no longer acceptable to God since the legitimate Aaronitic high priests had died out. It was natural that the Assideans, after the treachery of the degenerate high priest Alkimes (mentioned in 1 Mac. 7) withdrew from the temple service under the Hasmonæan priesthood.

<sup>2</sup> See Acts xxiv. 5, where the Apostle Paul is called a ringleader of the sect of the Nazarenes.



their possessions and lived after Ebionitic principles) belonged to the Nazarene fellowship.

When we assume that the early Christians knew of the Essenes and their institutions (which is not only probable but must be regarded as a matter of course), we may grant that they objected to the separatist as well as the monkish features of their life. Christ, who is frequently and perhaps rightly represented as being strongly influenced by Essene views and practices, retained their poverty ideal, but broke away from them in other respects: he ate with publicans and sinners, and did not practise any one of the Essenian austerities. As to the Essene love of esoteric doctrines, the Gospels state that the time had come to preach upon the housetops what was whispered in the ear. (Matt. x. 27, and Luke xii. 13.)

The ascetic ideal of voluntary poverty and absolute chastity remained for a long time a secret doctrine until it was preached openly and recommended to the world as the sole but certain means for establishing on earth the Kingdom of God, where there is no marrying nor any being given in marriage. This moral ideal of a universal monkhood is closely connected with the expectation of the appearance of the Messiah, which among the early Christians after the death of Jesus naturally changed into the doctrine of the second advent of Christ, which was perhaps the most essential feature of early Christianity.

The Gentile Christians, following the leadership of St. Paul, soon disavowed the Judaistic tendencies of the Jewish Christians, and went so far as to oppose some of the encratic tendencies of kindred Gnostic aspirations; still St. Paul followed the tendencies that generally prevailed in those days. Although he was liberal enough in his missionary zeal not to insist on celibacy, he greatly recommended it as superior to marriage, which latter is after all only suffered as a concession to human weakness. There can be no doubt that the notion of the holiness of poverty and chastity was retained, leading at last naturally to a renewal of monkish institutions, which in the third century spread rapidly and were at once recognised by all Churches of the time, in Asia as well as in

Africa and Europe, as the realisation of the highest ideal of Christian morality.

The conception of Gnosticism as a pre-Christian movement will serve to intensify our interest in the religious aspirations which characterise the last two centuries of the pre-Christian era; and we shall find that the most important influence of the Gnostic ideal shows itself in the wisdom literature of the Jews, the oldest products of which have been embodied in the canon, while the more recent ones belong to the Apocrypha of the Old Testament consisting mainly of apocalyptic books or revelations. Here the term Gnosis is not as yet established, although we meet with all the main ideals of later Gnosticism. The place of the word Gnosis is taken by the term wisdom or sophia, which is frequently personified and, in a very anti-Jewish fashion, represented as the companion of God. We read in the Wisdom of Solomon (viii. 3-4), a product of Alexandrian Judaism dating from the second century B. C.:

"In that she [i. e., wisdom] is conversant with God, she magnifies her nobility. Yea, the Lord of all things himself loved her. For she is privy to the mysteries of the knowledge of God, and a lover of his works."

From this sophia-doctrine there is but one step to that Apocryphal Christianity which makes the Holy Ghost the mother of the Messiah, a view which is still preserved in St. Jerome, iii. 2, who disapprovingly quotes from the Gospel according to the Hebrews the following saying of the Saviour:

"My mother, the Holy Spirit, took me just now by one of my hairs and carried me off to the great Mount Tabor."

The incarnation idea of Brahmanism which shows itself mainly in the legends of Krishna is quite a pronounced feature of Gnosticism. Great men are regarded as manifestations of the eternal wisdom or as divine powers that have become flesh, and even individual traces of Indian myths reappear in Gnostic writings.

The legends of Abraham show obvious traces of Gnosticism. They were Christianised in the Apocryphal book "The Apocalypse of Abraham," but are in their essential features undoubtedly older than Christianity, for Philo and Josephus, not to mention others,

quote individual incidents from them. In its purely Jewish form, the legend is most complete in the "Midrash Bereshit rabba" in a reference to Genesis xi. 28.<sup>1</sup> Another not less important tradition of the same subject is found in the Book Hajashar,<sup>2</sup> where we find several strange oriental legends woven into Abraham's life.

At Abraham's birth an unusual star appears which rapidly moving about devours four other stars, one in each quarter of the sky. The Magi inform King Nimrod of the significance of this phenomenon which foretells the unparalleled greatness and wide dominion of the child. Thereupon the King demands of Abraham's father, Tharah, the surrender of his son, who at once hides the mother with her new-born babe in a cave and substitutes the infant of a slave. All this reminds us of the kindred Krishna myths which have been incorporated in the Buddhist legends. The child Abraham, when quitting the cave for the first time, takes the sun as God; but the sun goes under and he now believes in the stars and the moon. But they, too, disappear at the reappearance of the sun, and now he understands that all visible things are the messengers of God, who alone is Lord. Abraham's father Tharah is described as an idol manufacturer who is rebuked by his son for the sin of worshipping things made by his own hand. Abraham is punished and thrown into a fiery furnace, but he escapes unhurt.<sup>3</sup>

The old legends of Abraham's life make him pray for a special revelation from God himself, which at last is granted after a purification of fasting. An angel whose name is Jaœl and whose power (like that of Metatron of the Talmud) is represented as above all other angels and creatures, leads Abraham into the highest heaven,

<sup>1</sup> Migne, *Dictionnaire des Apocryphes*. Vol. II., pp. 1103. Paris, 1858. Cf. B. Beer, *Leben Abrahams* etc. Leipsic, 1859.

<sup>2</sup> See Wünsche, *Bibliotheca Rabbinica*, *Midrasch Bereschit rabba*, *Das ist die haggadische Auslegung der Genesis*, Leipsic, 181. Conf. Abr. Geiger, *Was hat Mohammed aus dem Judenthum aufgenommen?* p. 123.

<sup>3</sup> There are several versions extant. The Greek text of "the Testament of Abraham" has been edited by M. Rh. James with an appendix containing extracts from the Arabic version of the Testaments of Abraham, Isaac, and Jacob by W. E. Baines. Cambridge, 1892. The Russian scholar G. Nathanael Bonwetsch has translated a version of the Apocalypse of Abraham from the South Slavonian into German (Leipsic: Deichert Nachf., 1897).

where he shows him all the secrets and reveals to him the future of the world. There he sees the stars from above and understands that they represent the number of his descendants. The æons of the later Gnostics play an important part and God is characterised as he who existed before the æons. The fall of Adam and Eve in paradise is described as sexual intercourse, and the fruit of the tree is said to be the grape.

In the book of Enoch the Jewish Gnosticism is very apparent. It explains in an allegorical form God's plan of the world's history as given to the patriarch Enoch. The Israelites are compared to a flock of sheep to whom a great sword is given to wage war against the animals of the field. The sealed book of guilt shall be opened, and judgment will be pronounced over the stars and the seventy shepherds (the chiefs of the Gentiles); they are condemned and together with the blind sheep (the apostate Jews) thrown into the fiery pit. But from the midst of the sheep rises a white bull (the Messiah) with great horns, whom the animals of the field will fear; and all the races of the earth will become like the white bull. Then a new heaven will be in the place of the old heaven, and thus the goal of life is reached.

While Enoch's demonology smacks of the religious myths of the Gentiles, his ideas of a Messiah are strongly spiritualised. The Messiah is neither a man nor a God-man; he is a divine presence. We read of the Messiah, commonly designated "the son of the woman," sometimes "the son of man," and once "the son of God," that he existed from the beginning:

"Ere the sun and the signs [in the zodiac] were made, ere the stars of the heavens were created, his name was pronounced before the Lord of the spirits. Before the creation of the world he was chosen and hidden before Him [God], and before Him he will be from eternity to eternity."<sup>1</sup>

It is a pity that we do not possess the original but only an Ethiopian version of the Book of Enoch, which has been translated into German by Dillman, for it is of great interest to the historian. It apparently embodies two heterogeneous views: one Judaic, the

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<sup>1</sup> Translated from Dillmann's German translation.

other gentile Gnostic; and it is probable that the original Book of Enoch, written by a Jew of the Pharisee party, found an Essene interpolator who superadded the spiritualistic ideas of his sect. The hypothesis of a Christian interpolation is not very probable, because a Christian would naturally have introduced some positive and definite feature's of Christ's life, such as it was represented in the early Church, the more so as the Gnostic interpolations of the book are very pronounced and even in translations easily recognised. We read, e. g. (in xlii. 2):

"Wisdom came to live among men and found no dwelling-place. Then she returned home and took her seat among the angels."

The salvation of mankind is not expected from the death of the Messiah, but through the revelation of the divine Gnosis:

Enoch proclaims that—

"All the secrets of wisdom will flow from the thoughts of his [the Messiah's] mouth, for the Lord of the spirits has given wisdom unto him and has glorified him. In him liveth the spirit of wisdom, and the spirit of Him who giveth comprehension, and the spirit of the doctrine and of the power, and the spirit of all those who are justified and are now sleeping. And He will judge all hidden things, and no one will speak trifling words before Him, for He is chosen before the Lord of the spirits. He is powerful in all secrets of justification, and injustice has no place before him."

While the spiritualistic views in the Book of Enoch, especially the supernatural personality of the Messiah, are not peculiarly Christian but Essenic or Gnostic, standing in contradiction to the idea that the Messiah would become flesh and live among men as a real man, we must recognise the fact that the Gnostic interpolations, or at least one passage, must have been written in the year 79 A. D., or shortly after, as it appears to refer to the eruption of Vesuvius and the formation of the hot springs at Bajæ, while other passages relating to the enemies of the Jews ignore the Romans so completely that they must have been written at a much earlier date.<sup>1</sup>

<sup>1</sup> Ewald assigns one part of the book to the year 144 B. C. and the other two to several years later, about 136-106. The interpolations of a later date, especially the reference to the events of the year 79, are probably written by a Gnostic who had not as yet heard of Christianity.

Very valuable books among the Apocrypha, showing traces of Gnostic influences, are the book of Daniel and the two books of Esdras. In these writings the idea of a bodily resurrection of the dead from their graves is, for the first time in Jewish literature, pronounced with great vigor. We read in the book of Daniel:

"Many of them that sleep in the dust of the earth shall awake, some to everlasting life, and some to shame and everlasting contempt. And they that be wise shine as the brightness of the firmament; and they that turn many to righteousness as the stars for ever and ever."—Daniel, xii. 2-3.

And Esdras says:

"In the grave the chambers of souls are like the womb of a woman:

"For like as a woman that travaileth maketh haste to escape the necessity of the travail; even so do these places haste to deliver those things that are committed unto them."—2 Esdras, iv. 41-42.

The expressions "the son of man" and the un-Jewish phrase "the son of God" now become current terms in Jewish literature, at least among the less conservative authors.

The Gnostic ideal, in spite of occasional outbreaks of a broad universalism, is frequently allied with a narrow Jewish chauvinism and a bitter hatred of the Gentiles. The authors of these books proclaim that although the enemies of the Jews are now triumphant, they are doomed to perish in the near future. The present is characterised as a period of trial in which many Israelites will abandon the cause of God, but a remnant will remain, for again and again are we assured that the world has been made for the sake of Israel and the other nations are like unto spittle. (2 Esdras, vi. 56.)

The end of this world draws near. Esdras says:

"The world hath lost its youth, and the times begin to wax old."—2 Esdras xiv. 10.

Great tribulation prevails, and greater hardship still will come upon the world, but at last "evil shall be put out, and deceit shall be quenched." (2 Esdras, vi. 27.) Better times will come, and the earth shall be given to the people of God for whom the world was created. That which is mortal will be done away with, and the life of the chosen people will be purely spiritual.



Esdras sees in a vision a great people praising God in song upon Mount Zion, and one young man in the midst of them of high stature, taller than the rest, setting crowns upon their heads. Esdras asked the angel that stood by him :

"Sir, what are these?"

"He answered and said unto me, These be they that have put off the mortal clothing, and put on the immortal, and have confessed the name of God: now are they crowned, and receive palms.

"Then said I unto the angel, 'What young person is it that crowneth them and giveth them palms in their hands?

"So he answered and said unto me, It is the Son of God, whom they have confessed in the world."—2 Esdras, ii. 44-47.

Esdras proclaims even the name of the Messiah. He informs us that the Lord said to him :

"My son Jesus shall be revealed with those that be with him, and they that remain shall rejoice within four hundred years." (2 Esdras, vii. 28.)

In addition to a definite fixation of the name and personality of the Saviour so eagerly longed for, we find in the book of Esdras and other Apocrypha many most beautiful gems of thought, which partly remind us of Christian ways of thinking and partly directly anticipate Christian phraseology; Thus we read :

"For the empty are empty things, and for the full are the full things."—2 Esdras, vii. 25.

"The most High hath made this world for many, but the world to come for few."—2 Esdras, viii. 1.

"There be many created, but few shall be saved."—2 Esdras, viii. 3.

"Notwithstanding the law perisheth not, but remaineth in its force."—2 Esdras, ix. 37.

In the name of God, an angel explains to Esdras the origin of evil as follows :

"A city is builded, and set upon a broad field, and is full of all good things.

"The entrance thereof is narrow, and is set in a dangerous place to fall, like as if there were a fire on the right hand, and on the left a deep water :

"And one only path between them both, even between the fire and the water, so small that there could but one man go there at once.

"If this city now were given unto a man for an inheritance, if he never shall pass the danger set before it, how shall he receive this inheritance?

"And I said, It is so, Lord. Then said he unto me, Even so also is Israel's portion.

"Because for their sakes I made the world: and when Adam transgressed my statutes, then was decreed that now is done.

"Then were the entrances of this world made narrow, full of sorrow and travail: they are but few and evil, full of perils, and very painful.

"For the entrances of the elder world were wide and sure, and brought immortal fruit.

"If then they that live labor not to enter these strait and vain things, they can never receive those that are laid up for them."—2 Esdras, vii. 6-14.

The Gnostic element made itself most plainly felt in the Wisdom of Solomon. While barrenness is regarded as a curse among the Jews it is praised in the Wisdom of Solomon; we read:

"Blessed is the barren, that is undefiled which hath not known the sinful bed: she shall have fruit in the visitation of souls." (iii. 13.)

"Better it is to have no children and to have virtue, for the memorial thereof is immortal." (iv. i.)

As birth and death are always closely connected in Indian thought, especially in Buddhism, so immortality is in these Gnostic aspirations made dependent upon the realisation of the ideal of virginity. As birth leads to death, so the abolition of death depends upon the abolition of giving birth. In this sense the church-father Clement (ii. 8) quotes from some of the lost Gospel the following strange saying of Jesus:

"Keep the flesh holy and the seal undefiled that ye may receive eternal life" (Clem. Rom. ii. 8).

The same idea is still more clearly expressed in another passage, quoted by Clement (Stromata iii. 6, 9, 13) from the Gospel of the Egyptians. In reply to Solome's question, "How long shall death reign?" Jesus answers:

"As long as ye women give birth. For I came to make an end to the works of the woman."

The abolition of the thought of sexuality indicates the restoration of the Kingdom of God. We are informed by the same Clement, quoting from the Gospel of the Egyptians, that the Lord on being asked when the time would be fulfilled, is said to have replied:

"When you tread under foot the covering of shame and when two shall be one [that which is without as that which is within] and the male with the female, neither male nor female."<sup>1</sup>

These quotations prove that even after the foundation of the Christian Church there were various conceptions of the essential doctrines of Christianity, from which in the struggle for survival the canonical Scriptures prevailed while the other conceptions were rejected as heretical, and the non-canonical Gospels were proscribed together with all non-Christian Gnostic books, so that only fragments of them have been preserved. But, before the canonical Christianity was fixed, there was little or no hostility between the Christians and other Gnostics. There was a period in which the difference between the general Gnostic view, and Christianity was esteemed of so little consequence that Christians did not hesitate to call themselves Gnostics and regarded the non-Christian Gnostics as brethren with whom they differed on points of secondary importance only. Thus the same Clement of Alexandria from whom we quoted some references to the lost Scriptures of the early Christians constantly calls the Christians Gnostics and demands that the Gnosis be pursued and attained solely for its own sake. He says (Strom. iv. 22, 136):

"It does not behoove a Gnostic to pursue the comprehension of God for some gain that 'this may happen to me' and that 'that may not befall me.' The knowledge (Gnosis) itself suffices him as a cause for study. Indeed, I would boldly declare that he who seeks the Gnosis for the sake of divine comprehension itself, pursues the Gnosis not even for the sake of being saved."

Nor is Clement isolated in his use of the term Gnostic as applying to Christians. The usage is well established in a great part of patristic literature. Take for instance the *Prophetic Scriptures*, which are exegetic comments on Bible passages. There we read:<sup>2</sup>

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<sup>1</sup> This passage (which almost justifies the theory of Gymnosophists) exists in two quotations, Clem. Rom., ii. 12, and Clem. Alex. Stromata, iii. 6, 9, 13. The words in parenthesis are missing in the latter, otherwise the quotation is of the former.

<sup>2</sup> *Ante Nicene Christian Library*, Vol. XXIV, pp. 115-135.

"The life of the Gnostic rule is pure from every evil deed, and thought, and word; not only hating no one, but beyond envy and hatred and all evil-speaking slander." (xxx.)

"Lead turns white as you rub it, white lead being produced from black. So also scientific knowledge (Gnosis) shedding its light and brightness on things shows itself to be in truth the divine wisdom (sophia), the pure light which illumines the men whose eyeball<sup>1</sup> is clear unto the sure vision and comprehension in truth." (xxx.)

"Gnostic virtue everywhere is good and meek and harmless and painless and blessed and ready to associate in the best way with all that is divine, etc.

"As cures, and prophecies, and signs are performed by the agency of men God working in them so also is Gnostic teaching." (xvi.)

Eusebius, the father of Church history, still preserves much of the Gnostic spirit and characterises Christianity in terms which do not mention a belief in Jesus as Christ. The gist of Christian ethics is (*Præparat. Evang.*, I. 4) said to be:

"That the whole human race might receive a divine and pious education and that it might learn to bear nobly and with a profound mind the wrongs of adversaries, and that it would not defend itself against the bad with their own methods, that they should master wrath, and hatred, and all wild passion, that they should also communicate of their affluence to the poor and the needy; that they should esteem all mankind as kin, and should recognise the so-called strangers by a law of nature as a neighbor and a friend."

The differentiation of Christianity and Gnosticism becomes the more complete, the more the Church doctrines harden, and may be said to have reached its climax in the days of Constantine. Plotinus is a Gnostic who is consciously opposed to Christianity which he knows only as the vulgar dogmatism of the state religion of the Roman Empire.

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When we propose to consider the influence of Gnosticism upon the early Church we had best begin with the man whose personality and writings are historically best assured—viz., the Apostle Paul.

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<sup>1</sup> This phrase reminds us of a similar expression in the Buddhist canon which occurs in the *Mahāvagga*, I. ii., in the famous passage with which Buddha sends his disciples into the world. The words referred to read: "There are beings whose eyes are scarcely covered with dust," etc.

The doctrines of the Apostle Paul are the product of several factors :

"First he sat at the feet of the Pharisee Gamaliel" (Acts xxii. 3). In Gamaliel's school Paul acquired his method which is throughout dominated by the stern logic of Pharisaism attempting to comprehend all things by contrasts, such as Messiah and Satan, this world and the life to come, the curse of justification by works and the bliss of grace, the cup of the Lord and the cup of devils, the flesh and the spirit, damnation by works, and salvation by faith, etc.

The second factor in St. Paul is his Gnosticism which he must have imbibed with the spiritual atmosphere of his age, perhaps during his youth while living at Tarsus in communication with Jewish and Gentile thinkers, the thoughts of all being tinged with such ideas as Gnosis, the three spheres of being, the pneumatic or spiritual life, the psychic or animal soul-life, and the hylic or material existence. And indeed Paul's philosophy is considerably more Gentile than the theories of Philo and other Alexandrian Jews. Paul's psychology is not Jewish; neither can it be traced in Pharisaical schools nor has it been acquired among the Christians at Jerusalem whose religious interests are concentrated on problems of a different nature. It may be and probably is original with Paul, but this much is sure, that the psychological problems themselves and the terms which he used were suggested to him by Gnostic speculations. His doctrines are based upon the definitions of flesh (*σάρξ*) and body (*σῶμα*), the latter being the organisation of the flesh; the psychic body (*σῶμα ψυχικόν*) and the higher pneumatic body (*σῶμα πνευματικόν*); understanding (*νοῦς* or *νόημα*), reflexion (*διάνοια*), and conscience (*συνείδησις*); the corporeal (*σωματικόν*) and the incorporeal (*ἀσώματον*). This nomenclature does not belong to the language of Jerusalemite Christianity; we must seek the history of these terms in Greece and shall find analogous expressions in the works of Neo-Platonic and other Greek philosophers, among whom we must include such Romans as Seneca who learned their philosophy in Greece, not in Rome. If we find a similarity between Paul and the wisdom literature of the Jews, it

is simply because the wisdom literature is also tinged with Gnostic thought.

The third factor in Paul's life is the Christophany—a sudden shock which he received on the road to Damascus, changing the direction of his entire life and bringing about his conversion. The same energy with which he had prosecuted the Christians is now devoted to spreading their cause. No doubt this Christophany is the assertion of a long suppressed conscience, and of the horrors which he must have felt while putting Christians to death, while he could not help admiring their heroic martyrdom. Important as this one moment is in Paul's life in changing the direction of his zeal, it contributes to the make-up of his soul little or nothing that is new; he received no additional information of any kind concerning the historical Jesus except this one idea: that Jesus was the Christ, that he died for our sins, was buried and had risen on the third day and appeared to the twelve apostles and other disciples. The burden of Paul's message is that Christ was glorified because he had been crucified. Paul had learned to appreciate the grandeur of martyrdom, and so the disgrace of the capital punishment of Jesus, which was still regarded among his disciples at Jerusalem as "a stumbling-block," had come to be an argument in his favor. It became to St. Paul an evidence that his was the glory in which the Gnostic longings of the time should find their *πληρωμα*, or fulfilment. It is noteworthy that Paul does not mention a single individual event of Christ's life, except the institution of the Lord's supper, which was probably a common brother-meal called *ἀγάπη* (such as was celebrated by the Therapeutae) in which the food was blessed, and in this form it must, together with baptism which was borrowed from the Zebians, be regarded as a Christian custom from the beginning of the Church. Otherwise Paul directly repudiates having received any instruction from the apostles and personal disciples of Jesus. He says:

"I neither received it [the Gospel] of man, neither was I taught it, but by the revelation of Jesus." (Gal. i. 12.)

When we bear in mind that Gnosticism in all its essential features is a movement which in its beginnings precedes Christian-



ity, we shall understand how it is possible for the first Apostles Paul and Barnabas to meet so many men of kindred aspirations. In Troas, where Paul and Barnabas abode seven days, the Acts inform us that Paul spoke "upon the first day of the week when the disciples came together to break bread," which suggests that these disciples had reunions on the day of the sun, the first day of the week, such as were customary among the Essenes and Therapeutæ on the seventh day. In various places the apostles met with men (Simon of Samaria, Acts viii; Apollos of Alexandria, Acts xviii. 19, see also 1 Cor. i. 12, iii. 4; Elymas the Sorcerer, Acts xiii. 8) who, according to all we know of Gnosticism, were Gnostic teachers. There are also "vagabond Jews," the sons of Sceva, mentioned in Acts xix. 13, who practised exorcism and at once adopted the name of "Jesus whom Paul preacheth," for their cures. Simon and Apollos hail the apostles as friends and co-workers. Simon (commonly called Magus) is described in the Acts as "A great one to whom they all gave heed, from the least to the greatest, saying, This man is the great power (*δύναμις*) of God."—Acts iii. 10.

This Simon believed also and was baptised. He excited the wrath of Peter, however, by offering him money for receiving the power of communicating the Holy Ghost. But on being rebuked by Peter, he at once sees his mistake and says, "Pray ye to the Lord for me." (Acts, viii. 24.)

Aquila, one of Paul's disciples, had been an adherent of some Gnostic system before his conversion, for we read in Acts xviii. 18, that he had "shorn his head in Cenchrea, for he had a vow." We must remember that the tonsure is an ancient Indian institution which continued among the Buddhist monks and may very well have been practised by some Gnostic sects.<sup>1</sup>

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<sup>1</sup> No doubt, there were various Indian practices prevalent in those days which have not been mentioned in the New Testament, but were adopted by the Christians as a matter of course. Of this the use of the rosary is one of the most remarkable instances. The rosary is a product of Brahman piety, and existed long before the origin of Buddhism in India. The Buddhists adopted it from the Brahmins, and at present it can be found among all the religions of the world which have ever directly or indirectly come in contact with India, except the Protestant Christians who discarded it at the very outset of the Reformation.

Elymas, the sorcerer, is condemned because he "withstood" Paul; and we read that Paul punished him by making him blind for a season. (Acts, xiii. 11.)

Among the Gnostics of those days there were many whom we should now call faith-cure healers, and Paul is credited with the same healing power, only he is said to have performed miracles, while Elymas and the seven sons of Sceva are called sorcerers and exorcists. We read:

"And God wrought special miracles by the hands of Paul: so that from his body were brought unto the sick handkerchiefs or aprons, and the diseases departed from them, and the evil spirits went out of them." (Acts, xix. 11, 12.)

When St. Paul came to Ephesus, we are told in the Acts, that he found some of "them who were baptised in St. John's baptism," the main difference being that they had not as yet heard of the Holy Ghost and the practice of laying on hands as a means of receiving the Holy Ghost, who would enable them to speak in tongues and to prophesy.

It is difficult to understand how the doctrines of St. John the Baptist, who is reported to have been only six months the senior of Jesus, could spread so much quicker over the whole Roman empire than Christianity, but we must remember that the baptism of St. John may mean the same kind of baptism; it may mean the baptism of that sect to which St. John the Baptist belonged; for St. John was not the founder of a new sect, but the leader of an established religious movement, and there can be little doubt about it that St. John was a Zabian.

The word "Zabian" is derived from the Hebrew or Aramaic root *צָבַח* *tsabha*, to baptise, and the Zabians were called by Greek authors Baptists, (*βαπτισται*) or Disciples (*μαθηται*). They were perhaps closely related to the Nazarenes, Ebionites, and Essenes, and like them were total abstainers from wine and meat, living either as hermits in the desert on purely vegetable food and wild honey, or in congregations of monastic communities, rejecting bloody sacrifices, objecting to taking oaths beyond the simple affirmative *yea, yea*, or *nay, nay*, and believing in chastity, abstinence, and poverty as the main means of salvation.

Apollo of Alexandria, who was gained for the Pauline view of Christianity by Aquila and Priscilla, was one of these Gnostic teachers of the sect of the Baptisers. We read in the Acts, xviii. 25: "Being fervent in the spirit, he spoke and taught diligently the things of the Lord." In his philosophical views and religious practices he agreed splendidly with Paul, but he was not informed on the latest development of the Baptisers' movement. It is stated in the same verse that "he knew only the baptism of John."

Neander says in his great and learned work *Allgemeine Geschichte der christlichen Religion und Kirche*, I., p. 207, footnote 3:

"This sect of the Zabians (*Βαπτισταί*), Nazarenes, Mandaeans (according to Norberg from *Ἰϋ μαθηταί* or *γνωστικοί*) apparently originated in its first germs from such disciples of John the Baptist as, against the spirit and doctrine of their master, assumed after his martyr death a tendency that was hostile to Christianity."

Here Neander, the greatest authority in Church history, implicitly acknowledges the pre-Christian existence of Gnostic sects. But would it not be historically more exact to say, that the Zabians who showed a hostile spirit toward Christianity were those disciples who had remained faithful to the narrow doctrines of their sect, and did not accept the doctrines of the Christian Church which was a consistent evolution of their movement?

It is strange that Paul who is the first Christian apostle to the Gentiles, wrote to the Romans and addressed his epistle "to all the beloved ones of God in Rome, the called saints."<sup>1</sup> These saints are commonly supposed to be Christians. But if this assumption were justified, we should be puzzled as to why Paul did not address the letter to the Christian congregation or to their bishop. There were many disciples of Paul in Rome, and Paul sends greetings to every one of them. They met at the house of Priscilla and Aquila and were apparently on good terms with the congregation of "Saints" to whom the letter is addressed. Still, that the "Saints of Rome" are requested to greet the "Church which assembled in Priscilla's house" (xvi. 5), proves that the two are different institutions. Paul addresses all other letters in definite

<sup>1</sup> πᾶσι τοῖς οὖσιν ἐν Ῥώμῃ ἀγαπητοῖς θεοῦ, κλητοῖς ἁγίοις.

terms "unto the Church of God" (1 and 2 Cor. and Thessal.), "to the Churches of Galatia," "to the Church of the Thessalonians," always indicating that he addresses Christians.

Paul expressly states (i. 6) that the Holy Ones in Rome to whom he addresses the letter, are together with all the nations "called of Jesus Christ,"<sup>1</sup> which implies that as yet they had as little embraced Christianity as the mass of the nations; and in closing he prays that "glory be to Him that is of power to establish you according to my Gospel and the preaching of Jesus Christ" (τῷ δὲ δυναμένῳ ὑμᾶς στηρίξαι). Paul says "God has the power to make you followers of the Gospel which I preach; he can firmly establish you therein" (στηρίξαι); and this implies that the Hagioi of Rome, addressed in the Epistle, are not as yet Christians.

The term "saint" is one of those names which in the days of Gnosticism applied generally to those who took an active part in the movement. The word signifies one who has hallowed his life and has chastened himself and finds the highest moral idea in sexual purity. It reminds us of the Essenes whose name Philo interprets as "the saintly ones" (ὅσιοι).

The probability is that the saints here addressed were an important society of Gnostics who, for all we know, actually called themselves "the Saints" or "the Holy Ones." In fact there is a difference between "Saints" and "Christians," Christians being such saints as founded their faith on Jesus Christ. Paul himself makes this difference, for he addresses his letter to the Ephesians both "to the saints which are at Ephesus and to the faithful in Christ Jesus."<sup>2</sup>

The name "Hagios," Saint or Holy One, was frequently used in Gnostic times as the name of religious societies, and remained long in use together with the term "Gnostic" as a synonym of "Christian." The Roman society of Hagioi must have been the

<sup>1</sup> κλητοὶ Ἰησοῦ χριστοῦ.

<sup>2</sup> τοῖς ἁγίοις τοῖς ὄντιν ἐν Ἐφέσῳ, καὶ πιστοῖς ἐν Χριστῷ Ἰησοῦ.

A similar double address is given to the Colossians, but the grammatical construction does not render the distinction between the Hagioi and the Christians as unequivocal as in the Epistle to the Ephesians.

centre of a great number of similar societies in the provinces, which would render a conversion of their members the more desirable, and this explains why Paul wrote to them an epistle that contained the trend of his message to the world.

The prevalence of Oriental sects in Rome is well attested by Tacitus who mentions two prosecutions of foreign religions under Tiberius, one of the astrologers and magi and the other of the Egyptians and Jews, the latter being mentioned in detail by Josephus.<sup>1</sup> Even the better classes were affected by the spirit of the age, and Stoics as well as Pythagoreans offered philosophical doctrines which were closely allied to the Gnosticism of Syria. Seneca tells us that ever since he attended, in his youth, the lectures of Attalus, he had abstained from wine and had never used unguents. Indeed, he once went for a time so far as to forswear all flesh diet, the viciousness of which the philosopher Sotion had impressed on his mind. Some of the new doctrines must have deeply impressed the young Seneca,<sup>2</sup> and it is quite probable that the most striking similarities between his philosophy and Christianity will find an historical explanation since both have originated at the same age and under the same influences, which we comprise under the general name of Gnosticism.

The sole objection to the view that the Romans addressed in the Epistle were not as yet Christians seems to be in the words employed in Rom. xvi. 17, "contrary to the doctrine which you have learned." But was not brotherly love an ideal common to all Gnostics, Christians as well as heretics? And mark that Paul at once changes the *ye* (ὁμεῖς) into *our* (ἡμῶν) when speaking of Christ (τῷ κυρίῳ ἡμῶν). Nor does Paul praise the faith of the Romans; he extols their open-mindedness, their willingness to hear all sides, their receptiveness, which he calls ὑπακοή. Open-mindedness after the conversion would have the flavor of fickleness.

If the Hagioi at Rome had been Christians it is not likely that Paul would have omitted to mention the fact; and if they were

<sup>1</sup> Ann., II. 32 and 85, Josephus, *Jewish Antiqu.*, 18, 3 et seqq.

<sup>2</sup> See his 108th letter.

familiar with the name of Jesus Christ, why did Paul deem it necessary in the very opening words of his Epistle, where he defines his own apostleship, to give a long explanation of the significance of Christ as announced by the Prophets (verse 2), of his being of the seed of David after the flesh (verse 3), of his being marked off (*ὁρισθείς*) as the son of God according to the spirit of holiness by his resurrection from the dead (verse 4)? Mark that holiness is here supposed to be the cause of Christ's resurrection, which is a thoroughly Gnostic idea and can scarcely be regarded as conforming to the views of the early Christians, who would certainly derive the virtue of holiness from the divine nature of Jesus. Jesus had not become the Christ by his holy life, but he was born as Christ, and therefore he remained holy; he lived, died, and rose again as Christ.

Paul was fully conscious of his relation to the Gnostic movement; he knew that to some extent he agreed with Gnosticism; but he also knew that Christianity was a rival movement of the Gnosis. He does not reject the Gnosis when addressing Gnostics. Thus he says in his Epistle to the Romans, xv. 14:

"And I myself also am persuaded of you my brethren that ye also are full of goodness, filled with all Gnosis and able also to admonish one another."

Yet he deems the non-Christian Gnosis insufficient and warns Timothy to avoid the babblings and contentions of "the falsely so-called Gnosis" (*ψευδώνυμος γνῶσις*, 1 Tim. vi. 20). He insists on the love of Christ as passing the Gnosis (Eph. iii. 19), and writes to the Colossians (ii. 8):

"Beware lest any man spoil you through philosophy."

Philosophy can signify nothing else but Gnostic speculations. Mansel sums up the conditions among the Colossians, which the Epistle presupposes, as follows. He says:

"The Epistle to the Colossians, which was written at the same time with that to the Ephesians, contains, however, more distinct indications of the existence of Gnostic errors among those to whom it was addressed.

"The characteristics of this teaching may be easily gathered from evidence furnished by the language of the Epistle. First; it pretended, under the plausible



name of *philosophy*, to be in possession of a higher knowledge of spiritual things than could be obtained through the simple preaching of the Gospel. Secondly; it adopted the common tenet of all the Gnostic sects, that of a distinction between the supreme God and the Demiurgus or creator of the world. Thirdly; by virtue of its pretended insight into the spiritual world, it taught a theory of its own concerning the various orders of angels and the worship to be paid to them. And fourthly; in connexion with these theories, it enjoined and adopted the practice of a rigid asceticism, extending and exaggerating the ceremonial prohibitions of the Jewish law, and probably connecting them with a philosophical theory concerning the evil nature of matter." *Gnostic Heresies*, p. 53.

What do all these references to Gnostic heresies in Paul's epistles prove if not their existence and prevalence?

The divisions in the Church of Corinth, mentioned by Paul in the First Epistle to the Corinthians, are schisms which exhibit all the features of post-Christian Gnosticism, but they too indicate the prevalence of a pre-Christian Gnosis. The followers of Cephas are presumably nomistic or judaising Christians, while the followers of Apollos are former Gnostics who had been gained for the new problems by the Gnostic teacher Apollos. Further, those who called themselves after Christ, too, must have interpreted the Christian doctrines, such as Paul preached them, in the light of their pre-Christian Gnosticism, for their view of the resurrection was less carnal and more spiritual than Paul's.

We have dwelt at length on the traces in the New Testament that speak in favor of the prevalence of Gnostic sects at the time when Paul began to preach, because these traces will be more readily accepted than any other historical evidences and because their importance, strange to say, has not as yet been appreciated by Biblical scholars.

\* \* \*

Among the personalities mentioned in the New Testament in connection with the spread of the early Church, Simon Magus is of special importance, because we know more of him through other sources than we do for instance of Apollos.

We have no reason to doubt the historic character of the report concerning Simon Magus in the Acts, although the friendly relations between Simon and the Apostles appear in a doubtful light

when we consider the opinion of the Church fathers. He is commonly condemned as a heretic and sorcerer whose doctrines are brought into close relation to various Gnostic sects. But the difficulty disappears when we consider the situation of the early Church seeking contact with other parallel movements of its age. Simon Magus was a friend of the early Christians; their doctrines were sufficiently similar to lead to a close alliance and amicable discussions of the problems in which both were interested. But Simon Magus left writings of his own which were still extant when Justinus Martyr wrote his *Syntagma*, from which Hegesippus Hippolytus, Eusebius, Jerome, Irenæus, and other Church authorities drew their information; and the more the consolidation of the Church became an established fact, the more Simon was condemned by Christian writers as a heretic. We can form a fair opinion of the heresies of Simon Magus, when we understand that his relation to Peter was quite analogous to the relation of Apollos to Paul. It is interesting to notice the similarity of Simon's views to Philo's philosophy and to the Gnostic doctrines of later teachers. Simon regarded himself as the Logos or divine word, and Jerome quotes from his writings the following passage:

"I am the speech of God, I am radiant, I am the comforter (paraclete), I am omnipotent, I am the whole of God."

"Ego sum sermo Dei, ego sum speciosus, ego paracletus, ego omnipotens, ego omnia Dei."<sup>1</sup>

Irenæus reports similar views of Simon, stating "that he was the sublimest virtue, i. e., he who was father over all."<sup>2</sup> The same author informs us that Simon identified himself with the trinity, and he taught that God had appeared to the Samaritans as the Father, to the Jews as the Son, to the Gentiles as the Holy Spirit.<sup>3</sup> If Irenæus has drawn this statement from a genuine writing of Simon

<sup>1</sup> The term "Sermo Dei" is apparently a translation of Divine Logos.

<sup>2</sup> *Euse autem se sublimissimam virtutem, hoc est eum qui sit super omnia pater.*

<sup>3</sup> Irenæus c. *Haer.* I. 23. Cf. Hippolytus *Ref. Haer.* vi. 19, and Theodoret *Haer. Fab.* I., 1.

Magus, we should be confronted with the interesting fact that the names of the Christian Trinity were first used by a pre-Christian Gnostic teacher.

These quotations in which Simon identifies himself with God, the father of all things, may or may not have been intended as personal references. Simon may have understood them in the sense of similar Vedanta doctrines in which the self is identified with the Allhood of the Brahm. For Simon apparently was ready enough to recognise Jesus as a God-incarnation greater than himself. For our present purpose, which is to characterise the general features of the Gnosis and to prove its pre-Christian existence, details are of little consequence. The most startling fact is that Simon uses terms which strongly remind one of Philo, while there is little probability that he borrowed from Philo. We cannot, accordingly, escape the conclusion that Simon and Philo, as well as other Gnostic teachers such as Apollos, were children of the same age, which renders the remarkable resemblance of all Gnostic sects a matter of course.

That Simon was not the oldest Gnostic was well known to the Church fathers, for Hippolytus (v. 2-5) expressly states that the Naaseni or Ophites, the Peratae, the Sethiani, and the adherents of Justin (who of course is not Justinus Martyr) existed before Simon, which renders it probable that he derived his doctrines from the older Syrian Gnosis.

The late Henry Longueville Mansel, whilom Dean of St. Paul's in London, and Professor of Ecclesiastical History at Oxford, may be right in interpreting the word power or *δύναμις* in Acts viii. 9-10 in its special Gnostic significance, and he says that when we adopt the reading *Οὗτός ἐστιν ἡ δύναμις τοῦ Θεοῦ ἡ καλουμένη μεγάλη* (This is that power of God which is called great) we obtain a clearer insight into the pretensions of Simon. At any rate, it is probable that the term *δύναμις*, power, is here used in its peculiarly Gnostic significance.

Simon is reported to have regarded himself as an incarnation of the Logos; he taught that from the invisible the incomprehensible Power Silence came two offshoots having neither beginning

nor end, of which one—the *voûs* or Intellect—is manifested from above as the male principle, the other *ἐπίνοια* or thought, from beneath as the female principle. This mysterious Trinity<sup>1</sup> is the Father, himself bi-sexual, that is the eternal upholder of all things transient, being he who standeth, who stood, who will stand without a beginning and without end.<sup>2</sup>

Vestiges of non-Christian Gnosticism, i. e., of Gnostic views rejected by the Church are frequently found in the New Testament Apocrypha. It is, for instance, a Gnostic fashion when Jesus is called the first æon in the *Pistis Sophia* and also when the Gospel of St. Peter interprets the cry of Jesus on the cross, *Eli, Eli*, as "my power, ἡ δύναμις μου."

The influence of Philo's Gnosticism on the author of the fourth canonical Gospel has been frequently pointed out and there is no need of further arguments to prove it. It is of less account for our present purpose, because the Fourth Gospel is much later than Paul and shows frequent traces of Pauline influences. The author of the Fourth Gospel represents a more matured Christianity than the Synoptic Gospels, but he neglects the historical standpoint. In his days the differentiation between Jewish Christianity as represented in the Revelation of St. John the Divine and Hellenic Christianity as inaugurated by Paul and first applied to the Gospel story by Luke, had become complete. Both parties now ceased to understand one another, and the disappearance of Jewish Christianity made an end of the conflict, leaving the field undisputed to the Hellenists.

Hellenic Christianity introduced all the ideals of the broader Hellenic Gnosis and superseded the narrower Jewish Gnosis. The chiliasm of the Jew-Christians, its hopes of a worldly restoration of the new Jerusalem with the dismal prophecies of the terrible vengeance that God would wreak on the Gentiles were superseded by a cosmic conception of Jesus as the world-logos. He is no longer called the son of David, but the light of the world, the bread of

<sup>1</sup> Viz., *Εγώ, Νούς* and *Επίνοια*.

<sup>2</sup> See Mansel, *Gnostic Heresies*, pp. 88-89.

life, the water of life, the vine, the shepherd, the gate, the way, the truth, and the life. While the synoptic Gospels, especially Mark, show concrete situations and a historical development of the character of Jesus; the fourth Gospel lacks all local color and represents Jesus as the same supermundane person throughout. Nevertheless the tone is more sympathetic to a Greek reader. There is no mention of obsessed persons and of lepers who play an important part in the synoptic Gospels, and fasts as well as ascetic practices which are still retained by Luke disappear. The last supper resembles more the agape, or love-feast, of the early Christians than the Jewish Passover; and all interest is concentrated upon the revelations of Jesus concerning the nature of his own divinity. While in the synoptic Gospels John the Baptist ventures to think that the new preacher in Galilee of whom he hears in prison, may be the Messiah himself, the fourth Gospel lets him speak of the dignity of Jesus from the beginning and describes minutely how he hailed him as the Messiah even before baptising him in the Jordan. A remarkable symptom of a changed situation will also be found in the characterisation of the Jews as the outspoken enemies of Christ. The fourth Gospel has probably drawn upon another and independent Gospel in addition to the synoptic Gospels, and this Gospel may in several details have been more reliable than Mark, which possibility must make us careful not to reject the account of the fourth Gospel whenever it comes into conflict with the other Gospels. Nevertheless, it is as a whole historically less reliable and reflects plainly the views and customs of the early Hellenistic Church.

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We understand now why non-Christian sects possessed institutions, rituals, and symbols, which were quite similar to those of the Christians, and we need no longer attribute them to the malignity of Satan, who apes the Lord's sacraments. On the contrary, we shall now be able to learn why many features of Christian institutions, such as the rosary, the mass, and other liturgic rites, developed in the Church without even having any foundation in the New Testament. The rites of Mithras were so commonly estab-



lished in the days of Justinus that he refers to them as well known. Justinus says :

"For the apostles, in the memoirs composed by them, which are called Gospels, have thus delivered unto us what was enjoined upon them ; that Jesus took bread, and when he had given thanks, said, ' This do ye in remembrance of me, this is my body ' ; and that, after the same manner, having taken the cup and given thanks, he said, ' This is my blood ; ' and gave it to them alone. Which the wicked devils have imitated in the mysteries of Mithras, commanding the same thing to be done. For, that bread and a cup of water <sup>1</sup> are placed with certain incantations in the mystic rites of one who is being initiated, you either know or can learn." *Anti-Nicene Christian Library*—Justin Martyr, p. 65, Vol. II.

The rites of Mithras continued in rivalry with Christian institutions and were still flourishing in the days of Tertullian, who in his book *On Prescription Against Heretics* speaks of "the Devil to whom pertain those wiles which pervert the truth and who by the mystic truths of his idols, vies even with the essential portions of the sacrament of God." Tertullian continues :

"The Devil whose business it is to pervert the truth, mimics the exact circumstances of the Divine. He (viz., Satan) too, baptises some, that is, his own believers and faithful followers<sup>2</sup> : he promises the putting away of sins by a laver [of his own], and if my memory still serves me, Mithras there sets his marks on the forehead of his soldiers : celebrates the oblation of bread ; and introduces an image of resurrection and under the sword a crown." *Anti-Nicene Christian Library*,—Tertullian, Vol. II.

"What also must we say to his [Satan's] limiting his chief priests to a single marriage ?<sup>3</sup> He, too, has his virgins ; he, too, has his proficients in continence." (*Ibid.*)

These passages prove that the Gnostics of the Mithras sect not only aspired after the same religious ideals, viz., forgiveness of sins,

<sup>1</sup> The use of pure water for the Lord's Supper in the churches of Northern Africa is well established through the 63d letter of Cyprian, and, says Harnack, "the same custom is reported of the Ebionites, Gnostic Jew Christians, Tatian, Encratites, Marcionites, and the Apostolics." (*Brod und Wasser. Die Eucharistischen Elemente bei Justin.* Leipzig. 1891. P. 117-118.)

<sup>2</sup> Compare Tertullian's treatises *De Bapt.*, 5, and *De corona*, last chapter.

<sup>3</sup> Tertullian (in his treatise *Ad uxorem*, 7) regards second marriage as "obstructive to holiness." He adds : "Priesthood is [a function] of widowhood and of celibacies among the nations. Of course [this is] in conformity with the Devil's principle of rivalry. For the king of heathendom, the chief pontiff (the Pontifex Maximus), to marry a second time is unlawful."



and an assurance of the immortality of the soul, as did the Christians, but that they also used symbols and sacraments which were exact analogies of the Christian baptism and the Lord's Supper. Even the moral aspirations are similar. There is no probability of a mutual borrowing; and if there were, it would be easy to prove that the rosary, baptism, and even mass, are pre-Christian institutions. The cup and the bread of Mithras are apparently derived from an ancient Zarathushtrian ceremony. We read in the Zend-Avesta<sup>1</sup> that "the sacred cup and the haoma are the best weapons to strike and repel the evil doer Angra Mainya." Darmesteter says that "Haoma" is the Vedic "Sôma," the drink of the gods; and the holy food of the Myazda was small pieces of meat eaten on little cakes called "draoma," consecrated in the name of deceased persons, corresponding to the Vedic "hotrâ." And it is stated that he who drinks of the white haoma (or Gas-Kerena) will on the day of resurrection become immortal.<sup>2</sup>

The name of Mass is commonly derived from the Latin *missa est*, which is interpreted to mean that "the congregation is now dismissed"—an etymology as absurd as the absurdest derivations of the ancient philologists. There is a probability that the word mass is the Latinised form of Myazda, if it be not the Hebrew מַצָּה (mazzah)<sup>3</sup>, the unleavened bread eaten by the Jews at the Passover festival. For all we know the word mazzah may be the Persian Myazda, which gains in probability if the main characteristic features of the Jewish festival of the unleavened bread is to be regarded as of post-exilic origin and the historical interpretation as added thereto, a method which is systematically applied to all the sacred days of the Jewish calendar.

As an instance of a festival adopted by the Jews from the Babylonians and interpreted by a story of later invention we quote the feast of Purim which in the times when the book of Maccabees was

<sup>1</sup> See *Sacred Books of the East*, IV., p. 206.

<sup>2</sup> See Darmesteter's "Introduction to the Zend-Avesta" in *Sacred Books of the East*, Vol. IV., p. lix., and also note on p. 56.

<sup>3</sup> The *z* in *mazzah* is a sharp *ts*,

written was called "Mordecai's Day" and appears to have been nothing else but the festival of the Babylonian god Marduk, the slayer of Tiamat, the old dragon, while Esther is the goddess Ish-tar. The Babylonian festival assumed gradually a distinctly Jewish character, and thus, says Professor C. H. Toy of Harvard, in his article on "Esther as a Babylonian Goddess," "the science of the old myths becomes history to later generations."

Nor must we lose sight of the fact that the Roman Catholic mass is even to-day spoken of as a sacrifice and is celebrated in a way which reminds us of the Gnostic aspirations to replace the bloody sacrifices by symbolic victims. The bread is called the *hostia*, viz., *Opferthier*, or victim to be slaughtered on the altar. It is not of bread, such as is daily eaten, but of an unleavened paste, called *oblata* or the offering, and is always of a circular shape reminding one of the disc of the sun.

C. W. King in his book *The Gnostics and Their Remains*, p. 53, quotes from Alphonsus de Spira in his *Fortalicium Fidei* (II., 2):

"That its (the wafer's) circular form is a symbol of the sun and that it is offered to the genius of that luminary as a victim. For the Talmudists hold that Abraham and the prophets were inspired by the genius of Saturn, a good and pure spirit; but Jesus by that of Mercury a malevolent one; and the Christian religion was the work of Jupiter, Mercury, and the Sun, all combining together for the purpose."

The Rabbinical view, of course, is inimical to Christianity; the more noteworthy, therefore, is the reference to the sun as a Christian planet, for the sun is always regarded by astrologists as the best and most divine star, and we must remember that the sun's day was commemorated from the beginning of the Church as the day of resurrection.

It will be instructive to compare Christianity with those Gnostic movements which refused to amalgamate the fundamental principles of the Gentile Gnosticism with the Jewish religion. The anti-Jewish Gnosticism died out together and perhaps simultaneously with Jewish Christianity, and thus the Hellenised Christianity alone survived.

In order to explain the success of Christianity as a Jewish

Gnosticism Hellenised, we must bear in mind that the Jews were the sole people among the nations of antiquity that possessed a religious canon.

The claims of the Jews to being entrusted with a special revelation from on high appeared justified by their simple and yet exceedingly practical solution of the religious problem. Their God-conception was popular and appealed to the Greek minds who had long been prepared by Plato and other philosophers to have a contempt for the traditional temple service and polytheism. The moral seriousness of the prophetic literature could not fail to leave a deep impression on any Gentile reader, and thus no religious movement could succeed which did not ally itself with the fundamental principles of the Jewish faith. Nevertheless Judaism itself in the narrow form of Pharisaism could not conquer the world. The national pretenses of the Jews together with their ritual were too offensive to the Gentiles. The Greek naturally held circumcision in abhorrence. Gentile Christianity selected from Judaism everything that agreed with the cosmical and universalistic tendencies of the Gnostic movement of the age and made its peace with the rest, rejecting the Jewish rituals and Levitic law as antiquated but respecting their historical importance as having served God's educational purposes in the history of the evolution of Christianity.

The truth of this view will be corroborated by a consideration of those Gnostic movements which failed to adapt themselves either to Judaism or Hellenism. The Jewish Christian Church appears to have existed under the name of Ebionites or Nazarenes until the time of Origen, but they had ceased to affect the further evolution of Christianity. The Revelation of St. John the Divine is the last monument of their spirit, and even that book became more and more unintelligible and enigmatic. It has never been universally regarded as canonical, and it kept its position in the canon mainly because its attacks upon Gentile Christianity, especially on Paul whose apostleship is not acknowledged, were not openly and ostensibly made but remained concealed in hints which, though plain enough, were less offensive.

As an instance of Gnostic movements which ignored Judaism

we mention the commotion created by Apollonius of Tyana, and of those sects which rejected it, the Ophites.

Apollonius, born shortly before the Christian era, made a deep impression upon the Gentile world, and even during his life-time was credited by his followers with being possessed of miraculous powers. The resemblance of his life to the life of Jesus is the main reason that Christian fanatics destroyed as much as possible of the documents bearing witness to the great influence which he exerted upon his contemporaries. By a happy accident Philostratus's biography of this remarkable man escaped the persecution of Christian monks, and we learn from it that Apollonius may fairly be regarded as a Gentile Christ. It seems that the religious spirit of the age was bound to have an incarnation of the Deity who would reveal to mankind the mysteries of the soul and establish his divine mission by a holy life, by long suffering and submission to persecution, and by miracles which would prove him to be beyond the power of death. Apollonius, however, was a pagan, and his whole personality is purely Gentile; he looked upon the worship of the Greek gods as a significant symbolism serving a good purpose in the religious education of the masses, but he lacked the backing of the powerful Old Testament traditions which, as we have seen, naturally became the indispensable condition of Christhood.

Philostratus tells us that Apollonius, having studied philosophy at Tarsus (the native town of the Apostle Paul) and medicine, or rather therapeutics, in the temple of Æsculapius, at Ægæ, observed with rigor the discipline of the Pythagorean school and then went out to study the wisdom of the East. He wandered on foot through Assyria, Persia, and India, and conversed with the sages and priests of those countries, insisting everywhere on a purification of morals and religion.

At Nineveh he met Damis who became his disciple and the constant companion of his after life, but the miracles which he tells of having witnessed are so marvellous that there are critics who even doubt whether Apollonius himself was not a purely mythical figure. Supposing, however, that the whole life of Apollonius was actually a myth, we should still have the remarkable fact that such

a myth originated contemporaneously with Christianity; for the hypothesis that the figure of Apollonius was invented in imitation of the Christ-ideal of the Christian Gospel has no plausibility. Apparently we are confronted with a strange parallelism.

Apollonius attains his perfection through his visit to the Hill of the Sages, whence he returns to the West to continue his work of preaching, prophesying, healing, summoning spirits, and restoring the dead to life. He visited all the countries of the Roman Empire and its capitals, including Rome where he was received with great honors. He ended his career at Ephesus, and Philostratus ends his book with a suggestion that he may continue to live somewhere else in a more spiritual form of existence, saying, "Concerning the manner of his death, if he died at all, the accounts vary."



The *Encyclopedia Britannica* sums up the situation of the influence of the figure of Apollonius on history as follows:

"After his death Apollonius was worshipped with divine honors for a period of four centuries. A temple was raised to him at Tyana which obtained from the Romans the immunity of a sacred city. His statue was placed among those of the Gods, and his name was invoked as a being possessed of superhuman powers. The defenders of paganism, at the period of its decline, placed the life and miracles of Apollonius in rivalry to those of Christ, and some moderns have not hesitated to make the same comparison. There is no reason to suppose, however, that Philostratus entertained any idea of this sort in composing his life of Apollonius."

Among the anti-Jewish Gnostics, the Naassenes<sup>1</sup> or Ophites are probably the most interesting and curious example.

The Ophites are a Syrian sect. They called themselves Gnostics (as Hippolytus informs us), but are spoken of as serpent-worshippers by the Church fathers who were at a loss how to explain their peculiar preference for the serpent that tempted Eve, and their disdain of Jahveh, the creator of the world and God of the Jews. Dean Mansel with his limited historical knowledge stands aghast at this "inversion of the whole teaching of Scripture, in calling evil good, and good evil," and speaks of it as a "portentous

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<sup>1</sup> From Hebrew  or Greek , i. e., serpent.

blasphemy." Indeed, the Ophite views are startling for any one who takes the view that Gnosticism is a mere perversion of Christian doctrines. But when we approach the subject with the better comprehension which we now possess of the religions of ancient India, we can easily account for the logic of this strangest of all heresies that apparently makes Satan change places with the Lord.

The original doctrines of the Ophites, as stated by themselves, are lost. We know only what they thought of the Old Testament and of Christianity. They were Gnostics and like other Gnostics distinguished between the material, the psychical, and the spiritual man. They believed in the Gnosis, or salvation by enlightenment, and salvation meant a deliverance from this material world. The world-builder was, according to their religion, the evil power who entices the souls into his snares by blinding them with ignorance. In this way souls become material and lose their spiritual, perhaps even their psychic powers. He, however, who attains to a full possession of the Gnosis, a Messiah, Buddha, a Christ, a pneumatized man, one who is perfectly spiritualised, liberates himself from the fetters of matter.

When the members of this sect became acquainted with Judaism, they pointed out that Jahveh was not the highest God. The highest God of the Ophites was (according to Irenæus) a trinity consisting (1) of the Father, who like the Adam Kadmon of the Cabala is the prototypal spiritual man, (2) of the Son also called reason or comprehension (*ἐννοια*), and (3) the Spirit which latter is represented as the female principle of spiritual generation. Mansel says in comment on this doctrine (*Gnostic Heresies*, p. 98):

"It is impossible to overlook in this representation a profane parody of the Christian doctrine of the Holy Trinity."<sup>1</sup>

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<sup>1</sup> The zeal of the venerable Dean for the Trinity doctrine, which only in later times became an established dogma of Christianity, shows itself in the remark which he adds: "Offensive as are some of the details of the theory, it is at least valuable as testifying to the primitive existence of that article of the Catholic faith from which it is borrowed." The argument proves a little too much for the preferences of Dr. Mansel; it proves the pre-Christian existence of the dogma, although we grant, in a form unacceptable to the Church, and could be definitely accepted only



Jahveh was called by the Ophites Ialdabaoth or Demiurge, the son of Sophia and Chaos (viz., matter). According to the reports of the Biblical books themselves, they claimed, the Demiurge or Ialdabaoth is a jealous God, inclined to wrath, revengeful, cruel, and lacking in the nobler moral faculties; yet they granted that after all he was not destitute of the wisdom of the All-merciful Highest God. Ialdabaoth created man and breathed into him the breath of life, implanting thereby unwillingly in his soul the seeds of wisdom. These seeds of wisdom afford man the possibility of rising above the Empire of Ialdabaoth, whose jealousy is aroused as soon as he notices his mistake. He therefore forbids man to taste of the fruit of the tree of knowledge. But the highest God, the all-wise and all-good, takes compassion upon man and sends the serpent, which animal is in India an emblem of wisdom and divine perfection, to teach man the use of wisdom, and the man ate and grew in comprehension. Then the divine wisdom appeared in various holy men, who again and again communicate to mankind the principles of the highest spiritual goodness which is nobler than the moral commands of Ialdabaoth.

Christ was to the Ophites higher than Ialdabaoth; but they distinguished between a Christ of the world of Æons, the spiritual or pneumatical Christ, and a psychical Christ. The former is similar to Buddha residing in the Tusita Heaven. He descended from the world of Æons through all the seven heavens, assuming in each one of them the form of the angels who inhabit it, and became incarnated in Jesus at the moment of baptism, staying with him during the time of his Messianic work, but forsaking him when his passion began. This theory well agrees with the Buddhist doctrine that Buddha is Bhagavat, the Blessed One, i. e., the Perfect Man, who having already in this life attained Nirvâna, is above all suffering. The Ophites had no explanation for Christ the sufferer other than to deny his Christhood. The passion itself appears to them as an evidence that Jesus was no longer a pneumatical man; he had ceased to be Christ.

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after the Christianisation of the Logos idea in the interpretation as given by the fourth Gospel.

Here lies the root of the origin of all doketic sects, which have their exact prototype in Buddhism.<sup>1</sup>

There were other Syrian Gnostics more or less similar to the Ophites, all of them agreeing in this that they regarded the Demiurge, who is identified with the God of the Jews, the Creator of the material universe, as an inferior deity, lavishing praise upon those personalities of Old Testament history who opposed Jahveh's authority and rebelled against his code of morals. The Cainites, for instance, believed that Cain, by his courageous opposition, greatly distinguished himself. According to Epiphanius, they say of Judas Iscariot that he alone among the apostles was possessed of the true Gnosis and maintain that his motive was pure and unselfish, for he knew that only through Christ's death could the empire of the Demiurge be overcome.<sup>2</sup> The Peratæ identified the serpent that tempted Eve with the Divine Word, the Logos of God.

Hellenic non-Christian Gnosticism reached its last efflorescence in Plotinus, a man who in many respects is like a Christian saint and yet is fully conscious of the contrast of his purely Gentile Gnosticism with the Hellenised Jewish Gnosticism, called Christianity, of his age. He uses the same terms which are found in the Christian Gnosis, Logos, Ousia, Pneuma, etc., but he remains,

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<sup>1</sup> Compare, for instance, the fragment of the *Fo-Pan-Ni-pan-King*, translated as an example of style by Samuel Beal, in his third Note to the *Fo-Sho-Hing-Tsan King*. There the Buddha, when accepting the poisonous food of Chunda the smith, declares: "Illustrious youth, for ages (Kalpas) innumerable the Tathāgata has possessed no such body as that you named, as suffering from human wants or necessities, nor is there such an after-body as you describe as eternal, illimitable, indestructible. To those who as yet have no knowledge of the nature of Buddha to these the body of the Tathagata seems capable of suffering, liable to want [but to others it is not so]." (Cf. *S. B. of the E.*, Vol. XIX., p. 367.)

<sup>2</sup> The good Dean Mansel rejoices that the book in which this view of the Cainites was set forth, entitled "the Gospel of Judas," has not been preserved. He calls it "a work which is happily lost." In the present days of inquiry into truth we find it difficult to understand how the early Christians could show such a great zeal in the extermination of all Gnostic writings. Here we have the last remnant of this narrow spirit. No wonder that Dean Mansel calls attention to the strange coincidences between the Ophite doctrine and Hegel's explanation of the fall of man, as the initial stage of a rise from a state of childish innocence. The Dean condemns "every attempt to represent the course of the world including man as a part of the world in the form of a necessary evolution." (*Gnostic Heresies*, p. 108.)

more than the author of the fourth Gospel, conscious of their original philosophical sense. The soul according to his view is alone our true self, the body is given to the soul and is foreign to it. He was so much a dualist that he was ashamed of having a body, and would not sit for a picture. While his view of the Deity is almost Christian, his tripartition of the world into the Deity, the world of Ideas, and the sensual world of matter, reappears with slight changes in the philosophies of Christian mystics. In spite of his dualism and his contempt of all bodily existence Plotinus regards these three realms, including the third one, as a genuine divine Trinity, calling the sense-world "the only begotten son" (*υἱὸς μονογενής*) and "the image of God."<sup>1</sup>

The main difference between Plotinus and Christianity consists firstly in his recognition of Plato's works as a kind of divine revelation in place of the Jewish canon; and secondly, in adopting the current Gnostic notions (e. g., reincarnation) and conceiving the origin of the world as an emanation from God.

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If, as we have stated at the beginning of this article, Gnosticism is older than Christianity, Christianity naturally originated from the religious fermentation of the Gnostic movement and survived in the struggle for existence all rival religions which presented similar solutions of the religious problem, and if finally we understand that we are here confronted with historical facts that are not the product of chance but result with necessity according to the law of evolution, we shall learn to appreciate the doctrine of a special dispensation of God's providence. Certainly God's providence is not such as the Sunday-school teachers explain it to their children; but after all there is a regular plan of education, a plan which is as natural and necessary as is the progress of all life, showing itself in the development of higher forms from lower forms, as the progress of invention, of science, of morality. The Jews are, in quite a special sense, a chosen people, chosen because specially fitted for realising a definite, desirable end in the evolution of reli-

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<sup>1</sup> *εἰκὼν τοῦ θεοῦ.*

gion. Of course we understand now, that the Greeks too were a specially chosen people, but they were chosen for other purposes; they were not as well fitted as the Jews to make the Gnostic aspirations sober and to graft their vague theories of the soul's immortality upon the religious experiences of a nation of sufferers. Gnosticism, if it had not been aided by Judaism, would probably have lost itself in the vague dualistic speculations and extravagant practices, ecstatic visions, and ascetic discipline of which even their maturest representatives are guilty. In a combination of Gnosticism with Judaism it was easier to drop the narrowness of the Jewish prejudices than to acquire without their previous amalgamation the sobriety of the Jewish religion. The wholesome influence of the Old Testament becomes specially apparent in the history of the Reformation in England and America and in the struggle of the people against all forms of oppression.

We conclude our article with the expectation of resuming the subject in some of its special features and of carrying it into the more difficult field of the problem of the Jewish Christian Church itself on the soil of Palestine under the personal influence of Jesus of Nazareth,—of him whose life marks the beginning of a new era in the history of mankind.

EDITOR.

## ASSIMILATION AND HEREDITY.

**THE PROBLEM** of the transformation of dead matter into living matter is continually being solved by each living cell. The most striking example of this process is the bird's egg, in which during the incubation a small piece of living matter, the germ, gradually transforms the whole yolk into living matter. It is just as evident in a growing organism. The transformation of the dead matter of the food into the living protoplasm of the body causes the growth of the child. We call this process of transformation of dead matter into living matter assimilation. Should we ever attempt to produce living matter artificially, this could only be done upon the basis of a careful analysis of assimilation.

The proteids and probably all constituents of living matter are generally different in the different species. Even the layman can recognise this through his chemical senses (taste and smell). The meat of the chicken and beef has a different flavor and odor, the various kinds of game taste and smell differently, etc. It is one of the fundamental facts of assimilation that the cells of an animal transform the proteids of another animal into their own protoplasm. If we feed a young dog during its period of growth with horse meat, the horse meat will be transformed into dog's meat, and in this form it will be deposited. How does this process of transformation take place?

The proteids have a very large molecule. The formula of constitution for the proteid contained in the hemoglobin of the horse is  $C_{880}H_{1098}N_{210}S_2O_{241}$ , that of the hemoglobin of the dog is  $C_{726}H_{1171}N_{194}S_2O_{214}$ . The transformation of the former into

the latter is only possible if two molecules of horse hemoglobin are split up into smaller building stones from which, by a new way of grouping, a molecule of hemoglobin of a dog is built up. Hence we see that the process of assimilation takes place in two phases, first a phase of cleavage and second a phase of synthesis of the small building stones into a new giant molecule.

But the cleavages and synthetical processes must be different in the protoplasm of different animals. The cells of a cat, for instance, split and put together the proteid molecules of horse meat in a different way from the cells of the dog. How does living matter split up the complicated molecules of our food, and why does this happen in a manner which is characteristic of and different for each species?

We know that the cleavage of the large molecules of our food into smaller molecules is brought about by ferments. The majority of investigators assume that a ferment is a special well defined molecule, but this is by no means certain, as we have not yet succeeded in finding out the chemical constitution of any ferment. To know whether the ferments of the living animal or living plant are something which we may hope to produce artificially in our laboratory, or whether they can only be found in living matter, is one of the fundamental problems of physiology. The possibility of producing living matter artificially and of producing new animal and plant forms depends to some extent upon our success in obtaining a more definite knowledge of the character of ferments.

## II.

One of the most important steps in our knowledge of the mechanics of fermentation is connected with the work of Emil Fischer on sugars. It has been known for a long time that a molecule of grape sugar is split up by yeast (for instance, *Saccharomyces cerevisiæ*) into two molecules of alcohol and two molecules of carbonic acid. Fischer succeeded in discovering a series of sugars which do not like grape sugar contain six atoms of carbon in the molecule, but three, four, five, seven, eight, and nine atoms of carbon. The names of these sugars are triose, tetrose, pentose, etc., to non-



ose. It was found that *Saccharomyces cerevisiæ* is able to ferment only those sugars which contain three, six, or nine atoms of carbon in the molecule, while the other sugars are not fermentable. Thus the fermentability is a function of the number of the atoms of carbon in the molecule.

But a much more important relation exists if we consider not only the constitution of the sugar molecule but also its configuration. The molecule of grape sugar has the constitution  $C_6H_{12}O_6$ . According to the various configurations of the atoms in this molecule, sixteen isomeric sugar molecules with the constitution  $C_6H_{12}O_6$  (Hexaldoses) are possible, a number of which are known. By means of a number of investigations it has been established that only three of these hexoses are fermentable with *Saccharomyces cerevisiæ*, namely, d-glucose, d-mannose, d-galactose. This dependence of fermentability upon the configuration of the molecule becomes more evident if we compare some of the formulæ of the hexoses which are fermentable with those which are not fermentable.

1. d-Glucose	$CH_2OH$	H	H	OH	H	COH	(Fermentable.)
		C	C	C	C		
		OH	OH	H	OH		
2. l-Glucose	$CH_2OH$	OH	OH	H	OH	COH	(Non-fermentable.)
		C	C	C	C		
		H	H	OH	H		
3. d-Mannose	$CH_2OH$	H	H	OH	OH	COH	(Fermentable.)
		C	C	C	C		
		OH	OH	H	H		
4. l-Mannose	$CH_2OH$	OH	OH	H	H	COH	(Non-fermentable.)
		C	C	C	C		
		H	H	OH	OH		
5. d-Galactose	$CH_2OH$	H	OH	OH	H	COH	(Fermentable.)
		C	C	C	C		
		OH	H	H	OH		
6. l-Galactose	$CH_2OH$	OH	H	H	OH	COH	(Non-fermentable.)
		C	C	C	C		
		H	OH	OH	H		

If we ask what is common to the sugars which are fermentable we see that it is their close relationship to d-glucose. It is only

necessary to exchange an H-O and an H-group in order to transform d-galactose and d-mannose into d-glucose. In a similar way it can be shown also for other ferments that the fermentability of a substance depends upon its chemical configuration.

### III.

But this knowledge does not offer us much assistance in deciding the question whether it is a vital process of the yeast cell which makes fermentation possible, or whether the ferment of the yeast can exist independently of the life of the cell. Thirty years ago there was a lively controversy on this subject between Pasteur and Liebig. For Pasteur the process of fermentation was a phenomenon accompanying the life phenomenon of yeast. "Fermentation begins and ends with the life of yeast. Alcoholic fermentation never takes place without simultaneous organisation, development, and reproduction, i. e., without continuance of life." Liebig, however, attacked this vitalistic conception of Pasteur. To him life phenomena were only phenomena of motion and he did not accept Pasteur's explanation when he said that fermentation was a physiological process. Liebig himself considered that an explanation of the process of fermentation was only possible by means of physics and chemistry. Liebig compared the effect produced by the ferment to that produced by heat upon organic molecules. In both cases the motion affects the internal arrangement of molecules. He mentioned that acetic acid is split up into carbonic acid and acetone by heat, similarly as sugar is split up by yeast into carbon dioxide and alcohol. But there was still another and stronger argument in favor of Liebig's view. It had been shown previously that certain ferments originally contained in living cells can be separated from the living cell and yet continue to produce the same fermentative effects. For instance, living yeast is able to decompose salicine into saligenine and an acid, yet it was shown that a soluble substance emulsine is able to produce the same fermentation. Liebig argues from this as follows: "If we ascribe the decomposition of salicine by yeast to a physiological process, namely, the growth and development of the yeast, as Pas-

teur has done, we are not able to explain the effect of the emulsine. In addition, both the yeast and the emulsine have one peculiarity in common. If heated in water to the boiling point of the latter, they lose their fermentative power. Hence it is more probable that the yeast cell and emulsine owe their fermentative effect upon salicine to the same chemical compounds or conditions." . . . "We can imagine that the physiological process bears no other relation to the process of fermentation than to produce that substance which brings about the falling apart of the sugar and other organic compounds. Thus the physiological process would be necessary to produce this substance (ferment), but otherwise the life phenomena of the yeast would have no connexion with the process of fermentation."

Pasteur could not deny that the case of emulsine was contradictory to his vitalistic conception of fermentation. Neither could he deny it in the case of invertine, a soluble substance which can be extracted from the yeast with water and which afterwards continues to produce certain fermentative effects. But he saved his vitalistic views by adopting a discrimination proposed by Dumas, namely that there are two kinds of ferments: (*a*) soluble ferments like invertine, emulsine and diastase, which were called enzymes, and (*b*) living ferments that reproduce themselves like the yeast cell. The alcoholic fermentation of sugar was, according to the opinion of Pasteur, a process that could only be accomplished by the living yeast cell and hence differed fundamentally from the case of soluble ferments or enzymes.

#### IV.

During the following thirty years most authors accepted Pasteur's idea. The wonderful results of his bacteriological researches made the critics blind in regard to the weakness of his theory of fermentation. Only a few authors like Hoppe-Seyler stuck to the firm logic of Liebig. "The effect of a ferment on other substances," says Hoppe-Seyler, "only depends upon its chemical structure. If one says a ferment is an organism this statement cannot well have any other meaning except that we do not wish to discriminate be-

tween the whole organism and its constituents. The notion of an organised ferment that Pasteur and his followers applied to yeast can be applied with the same right to any living being and even to man."

Recently the controversy between Liebig and Pasteur has been decided in favor of Liebig. First of all, Emil Fischer tried to answer the question whether from a chemical point of view there was such a fundamental difference between organised ferments and soluble enzymes as Pasteur had assumed. We have seen that, in regard to the organised ferments, the stereochemical configuration of the molecule decides its fermentability. Fischer showed that exactly the same is true for enzymes like invertine and emulsine. He subjected two stereoisomeric compounds,  $\alpha$ -methylglucoside and  $\beta$ -methylglucoside, to the effect of both enzymes. He found that invertine is able to split  $\alpha$ -methylglucoside into methylalcohol and grape sugar, while it has no influence upon  $\beta$ -methylglucoside. Emulsine, however, splits  $\beta$ -methylglucoside into methylalcohol and grape sugar while it has no influence upon  $\alpha$ -methylglucoside. Thus it was proved that in chemical regard there is no principal difference between ferment and enzyme.

In connexion with these researches Fischer intimated how it can happen that a ferment breaks up one compound while it cannot affect its stereoisomeric compound. Suppose the case of invertine which is able to ferment  $\alpha$ -methylglucoside while it cannot affect  $\beta$ -methylglucoside. Both glucosides have dissymmetrical molecules. Fischer assumes that the enzymes too have a dissymmetry in their molecular configuration. "Their limited effect upon glucosides therefore might be explained by the assumption that the molecules can approach each other as closely as is required to bring about the chemical process only in the case of geometrically similar configuration. Metaphorically one can say that enzyme and glucoside must fit like lock and key in order to have a chemical effect upon each other.

The fact that the activity of enzymes is limited to such a high degree by the molecular geometry might be of some use for physiological research. But still more important seems to me the proof

that the discrimination, heretofore accepted, between the chemical activity of the living cell and the activity of purely chemical compounds does not exist as far as molecular dissymmetry is concerned. By means of this proof the analogy between living and not-living ferments which Berzelius and Liebig emphasised so often is re-established in an essential point. (Fischer).

But the opponents of Liebig still could claim that the alcoholic fermentation of grape sugar could only be accomplished by living yeast and that no adherent of Liebig had succeeded in extracting an enzyme from the living cell which could bring about the alcoholic fermentation of sugar. Until this could be done Pasteur's view was justifiable, namely, that the alcoholic fermentation of sugar is a life phenomenon of the yeast and that there is a fundamental difference between living ferments and enzymes.

Very recently, however, this objection too has been done away with. Buchner has succeeded in extracting an enzyme from the yeast which transforms sugar into alcohol and carbonic acid. He has thus brought about this kind of fermentation without living yeast. Hence the correctness of Liebig's theory was entirely confirmed. The reason which prevented the isolation of the enzyme of alcoholic fermentation from the yeast so much longer than the isolation of the invertine was a purely technical one. It requires a high pressure in order to separate the enzyme of alcoholic fermentation from the yeast.

Thus it is proved that the means which the living body possesses of transforming dead matter into living matter are enzymes which can exist independently and outside of living matter.

V.

The decomposition of large molecules into smaller building stones by enzymes is only one act of assimilation. The second act is the building up of new and different molecules from these building stones. The old belief was that such a synthesis was only possible in plant cells, but this is wrong. We know of a series of synthetical processes in animal cells, for instance the formation of hippuric acid from benzoic acid and glycocoll in the cells of the

kidney. While fermentations can take place without oxygen, oxygen is absolutely necessary for this synthesis. Synthetical processes are just as general and essential for the life of animals as for the life of plants.

That the synthetical side of assimilation depends upon the fermentative side of it can be proved directly. In our body carbohydrates are stored in the form of animal starch. The molecule of glycogen is much larger than that of sugar and evidently originates through a process of condensation from the latter. Voit was the first to assume and Cremer has proved that only such sugars are good builders of glycogen which are easily fermentable with yeast. The yeast cells resemble the human cells in that they are able to store their carbohydrates in the form of glycogen and not in the form of starch as the green plant cells do. This discovery was made by Errera. Hence our cells as well as those of the yeast are able to form products of condensation only from those sugars whose configuration makes them an easy prey to the enzymes of the yeast cell or of our body.

At present we have no data concerning the molecular configuration and the fermentation of proteid molecules but there is no reason to assume that the principles which hold good for the assimilation of the carbohydrates should not hold good for the assimilation of proteid molecules. All the facts which at present allow us to draw a conclusion upon the assimilation of the proteids point out that both groups of bodies behave similarly as far as assimilation is concerned.

In the process of assimilation the geometrical configuration of the molecules may play still another rôle. It might be possible that the form of the molecules present in the living matter predetermines the form of the molecule into which the smaller building stones are put together in the synthetical phase of assimilation.

#### VI.

From what we have said it is clear that the first step toward the artificial production of matter which is able to assimilate depends upon our further knowledge of the nature of enzymes. This knowl-



edge must be preceded by an understanding of the configuration of the proteid molecules. It is certain that the analysis of the enzymes is a problem which belongs to the realm of pure or physical chemistry. There is no reason to doubt that as soon as an analysis of the enzymes has been accomplished their synthesis will be accomplished too. Of course we are not yet able to judge how great the technical difficulties will be.

But the data which already exist suffice to allow the understanding of one essential point in the problem of heredity, namely how it happens that from the germ of an animal only an animal of the same species and of no other species can develop. The cause for this is that the germ of each species is only able to produce synthetically the typical compounds characteristic of this species. But as the assimilation through the germ of an animal is determined by the nature of the enzymes it contains, we must form the conclusion that the egg or the sexual cells are in so far bearers of heredity as they are the bearers or producers of specific enzymes which are characteristic for each species.

The problem of assimilation is at the same time the fundamental problem of heredity. Any theory of heredity must be based upon the mechanics of assimilation. We therefore have to substitute for or add to our purely morphological hypotheses of heredity a chemical theory. We do not need to be surprised at this. Living organisms are in the first place chemical machines and the process of embryonic development is determined by a definite series of chemical changes. It can be shown indeed that for the heredity of instincts as well as that of forms we do not need to assume anything more complicated in the sexual cells than the presence of specific chemical compounds especially enzymes or zymogens.<sup>1</sup> They are the true bearers of heredity.

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<sup>1</sup> Cf. the article "On Egg Structure and the Heredity Instincts." *The Monist*, July, 1897

## THE SOCIAL PROBLEM.<sup>1</sup>

THE PROGRAMME which we sketched for resolving the questions propounded in *The Monist* for October 1893, and which were summarised again at the conclusion of the article in *The Monist* for October, 1897, was evidently too vast. We are desirous of hastening to our conclusion. Yet much remains to be examined. The studies leading to the practical goal set by sociology are in reality divided into three parts: (1) The foundation, the preface, so to speak, which is absolutely necessary, and which reposes upon anthropology. We are here concerned with the science of man and of his relations to nature, with the motives of his acts, with his strength and with his weakness. Man is an animal. His animality is the source of all the difficulties in society. It is the enemy which must be combated and which consequently must be exhaustively studied. (2) Sociology proper, which is the history: (a) of animal societies; and (b) of human societies, of their development, and of the varied and complicated phenomena which they present from their origin to the present day. (3) Social science, the chapter to which we are now come, and which, in its highest domains especially, is the application of the truths discovered in the preceding parts, to the needs of modern societies.

The apparent or real contradiction between nature, the individual, and society, between the social evolution such as it actually is and the social evolution such as we should like it to be, between the ends of nature and the ends of society,—such is the main problem which we are called on to elucidate. The misunderstanding—

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<sup>1</sup> Translated from Professor Topinard's MS. by T. J. McCormack.

ings which obtrude themselves into the solution of the questions here set, arise wholly from the confounding of the following three points of view,—nature, the individual, and society. Thinkers start in their reasonings from nature and draw conclusions as to the individual: or, they begin with the individual and draw their conclusions as to society; or *vice versa*. The prime requisite is clearly to separate these three points of view,—which we shall now endeavor to do at the risk of slight repetitions, perhaps.

#### NATURE.

The universe is summed up for man in two words: the ego and the non-ego; the centre and the circumference. The ego knows the non-ego by the images it receives from it; it observes their differences and resemblances, fixes and classifies their relations, and gradually rises from particular considerations to more general views. These relations, these views, are ideas, which may be distinguished into positive and negative, particular and general. Among general negative ideas are the concepts of infinity, of nullity, of a beginning from nothing, of an end leaving nothing. Among general positive ideas are the concepts of succession or of time, as in the cinometograph; the concepts of parallelism or space, arising from the impossibility of conceiving two things to occupy the same place at the same moment; the concepts of continuity and intermission, of causality or independence, etc. Ideas may be further distinguished into relatively direct and relatively indirect ideas. The latter are the product of induction or of imagination. The ideas of absolute welfare, of absolute good, of absolute beauty, are comprised in the last category. They are concatenate ideas, conceived at their maximum of expression in a type which the mind represents to itself. Absolute good, welfare, and beauty are not realities, but the conception of an ideal, of a *ne plus ultra*, along a certain path. The union of the three is absolute perfection, perfect harmony in the whole, a complete adaptation of things to one another, the reaching of the objective goal conceived by the subjective mind, of the non-ego by the ego.

The last utterance of positive and inductive knowledge, as

given by the present state of science, may be summed up as follows. Matter and energy are always associated, and, under infinitely varied forms, are eternal. These forms are in a perpetual state of mutation. Rest is but a transitory appearance; change is the life of the universe. Matter composes all bodies,—solid, liquid, gaseous, or what not; energy engenders all phenomena. The commonest form of energy is attraction, which by two different processes gives rise either to motion or to molecular cohesion. In new aggregations adaptation to existing things is the first law. The formations or mutations are effected in all directions according to the solicitations and resistances; but judging from the portion of the universe of which we form part, and in its existing phase, one general direction predominates in them,—a direction from the simple to the complex, from the similar or non-differentiated to the dissimilar or differentiated, from the unstable or non-adapted to the stable or adapted. This general direction in time and space is what is called evolution.

Evolution, although single in your eyes, is yet, for purposes of study, divided into as many particular evolutions as there are separate subjects to be considered. Such is the evolution of our solar system, of which our planet is but a fragment, the evolution of life on the surface of our planet, the evolution of the ego and of thought in the animal series, the evolution of human societies. The beginning and the end are the critical problems of the two first. How, in the initial star-dust, were the first combinations of the mobile atoms, which were originally alike and independent, effected? And how through them was the first centre of general attraction created? How on our planet was the first granule of protoplasm formed? The end, so far as we are concerned, we know. Our earth will cease to be habitable. It will grow cold again, will doubtless lose its atmosphere, its humidity, and will resemble our present moon. Evolution, from having been progressive, will become stationary, then regressive. Some day, as Huxley has asserted, the lichens, the diatoms, the *Protococcus*, will be the only living beings adapted to the conditions of life, and finally there will be nothing. As for our sun, when it shall have exhausted its present store of fuel, when

it shall have become inhabitable and shall have had its ascending and descending evolutions, and possibly also its human phase, it too in its turn will become a dead star lost in space, and other systems will begin and will shine for a period, to end as the others have ended. And to what purpose is it all? Our imagination, our reason, can they conceive of anything which does not remove, postpone the difficulty without solving it? One need but read pages 446-448 of the French edition of Guyau's *Irreligion of the Future* to learn what even the most seductive conceptions lose when we seek to support them by speculations regarding the inaccessible in the present state of science. The wisest course is to confess humbly our inadequacy and to take refuge in the agnosticism of Huxley.

The factors of organic evolution on the surface of our planet, as we have already stated in *The Monist* of October, 1895, page 46, are as follows: (1) the spontaneous expansion of life, or the augmentation of the matter which is its seat at the expense of other matter received from without and assimilated, up to the point where the separation of a part of the mass is effected,—by which act results the creation of other individuals; (2) the spontaneous variation of individuals so created,—the first cause of the differentiations and multiplications of living forms; (3) the adaptation and increase of those of these variations which are utilised and suit with the conditions of existence,—the second cause of differentiations and particularly of their establishment. Heredity, or resemblance by continuity of individuals, and the survival of the forms best adapted to the circumstances, are but consequences. The expansion of life is effected in all directions, where no resistance is made. A fragment of *Lemna* thrown upon the surface of a pond sends forth its branches on all sides and ends by invading the whole pool. Variations likewise are effected in all directions. The utilisation and adaptation of these variations alone determine the directions which the forms take under the influence of circumstances, such as accident gives rise to, marshals and renders efficacious. At times these circumstances come into conflict with one another, at times they confirm one another. They accelerate, retard, or arrest progress in the path followed, up to the point where they change it, turn it

aside, pull it backwards, or cause it to describe a zigzag course. They give birth to types which are marvellously successful, but more frequently perhaps to imperfect, faulty, aberrant, partly non-viable, types which respond to the need of a day but not to the general needs. Such, for example, to cite only mammals, is the type of the sloth, condemned by his unfortunate organisation to a passive existence, from which he cannot wrest himself; the type of the great animals which became extinct in the Jurassic epoch; and even the type of our elephant of to-day, which requires such great quantities of nourishment that it is surprising that it is still existent. There are admirable linear series such as that of the Primates, where advance follows in harmony with reason, and which sooner or later must give good results. But there are also series which have been hoodwinked, so to speak, which have been thrown off the track,—series which can never lead to anything, which have ended in a *cul de sac*. Thus the high-road of evolution is strewn with victims, with imperfect beginnings, with species incapable of persisting, with misfits. Still, since in this hecatomb the fit survive, and the unfit succumb, the general result, in the present state of things, is what is called progress.

In sum, the evolution of life upon our planet is neither an entity, a cause, nor a force, but a series of effects, the result of an incessant struggle between the expansion of life and the conditions which confront it. Life expands blindly, capriciously, without plan or design, as circumstances shape its course. In this evolution two things are to be distinguished: a general direction towards improvement in the general conditions which we now know; and possible particular directions, having greater or less duration. The latter are good or bad according to the particular species concerned, and it may even involve advantage for a given species to resist the natural evolution and when possible even to direct its course.

We have seen, in fact, that the various species at the various epochs in which we have considered them,—the Jurassic, the Eocene, the Pliocene, and the present,—are comparable to the terminal efflorescences of a tree of which the dead branches and trunk have disappeared; and that through subsequent flowering these



efflorescences are replaced by others; that, in a word, the common law of all species, both good and bad, is death. Among the mammals, very few species have perpetuated themselves through several ages. Does not the conclusion suggest itself that if some one of them by some exception possesses some peculiar quality which enables it to shape in some measure its destiny, and to secure for itself in some measure its own happiness, it is reasonable that it should make full use of that quality. It is a positive fact that Nature has no concern for the numerous species to which she has given birth, no more than the tree has for the leaves which turn yellow and sear every autumn, and fall to the ground. Nature, like evolution which is but the result of its mutations, is not a personality. It has neither feeling nor reason; it has neither the notion of the good nor of the beautiful. Whether a species is good or bad, whether it is adapted or not to its environment, whether ten, twenty, or one hundred die before a good one is reached is a matter of indifference to her. Nature is a state of things merely, a series of changes, a wheel which turns perpetually, a world inhabited or uninhabited which rolls through space. If man is more favored than other species he has to thank himself alone for it. He may erect altars to Nature and invoke her aid, but she will abate not one jot or tittle of her onward movement. If he would escape the common fate, if he would ameliorate his condition, be happy, let him make her his servant, reign over her so far as he can; but let him place his trust in no one but himself.

#### THE INDIVIDUAL.

The species is merely a definite number of individuals, which have sprung one from another, which have been separated since their birth, and are independent. Among the vertebrates some forget their parents, others abandon them as soon as they can, and preserve no remembrance of them. The individual, in fine, is the real and tangible thing, the only thing in living nature which joins psychical attributes to physical attributes, the only thing which, while subject to the laws of nature, bears within itself some spontaneity of its own, if not a relative autonomy; the thing in which all

life, all organic evolution is materialised, and which is at once the beginning, the middle, and the end; the thing which is born, which grows, dies, and propagates itself, leaving behind it new individuals, always distinct and independent. It is the individual which varies, works, and is transformed by insensible degrees, donning the infinite forms which people our planet and which the naturalists divide into species, families, orders, etc. Alone of all the bodies of the universe it knows the objects which surround it and concern it, the movements it executes, and is cognisant that it exists; it alone rises in the front of and in defiance of Nature and reversing positions makes itself its centre; it alone in a certain epoch of its development possesses a centralised ego which thinks and reasons.

Upon this characteristic ego, depend, directly or indirectly, all the acts of the individual which lay a claim to our attention. It is doubtful, as we have shown, whether it exists among the Protista. There are as many particular egos among the lower composite animals as there are parts in connexion with its special division of labor. Among animals not so low in the scale, certain of these egos become confluent, and one of these confluences attains supremacy. Among the vertebrates they are centralised in a special organ.

The central ego does not intervene in all circumstances, but only after an intermittent and facultative fashion. It abandons to the spinal chord the ordinary acts, which the organism has contracted as habits, and enters into play occasionally only, to modify those acts according to the special requirements of the needs of the individual of which it has the administration. In the reptile, the vulture, the marmot, these needs are limited to eating, drinking, sleeping, keeping warm, satisfying the instincts of reproduction, avoiding danger, and acting in self-defence. Their foresight is minimal, frequently zero; the individual thinks of the present, at most of the morrow, or of the winter to follow. Memory is limited, reflexion is directed only to the immediate effects of acts; habits or instincts predominate over everything; the ego intervenes but little. In some of the higher mammals, as the elephant, the monkey, the domestic cat, the picture begins to change. The faculty of ob-

ervation, memory, reflexion, foresight, increase; the rôle of the ego becomes more pronounced; it interferes more.

In man, especially in our days, the picture is totally different. His needs have infinitely increased, the necessities of life no longer suffice him, he reaches out for the superfluous, for the comforts of life, and for the pleasures of the intellect. He has ungovernable desires, passions of all kinds; he pursues various ideals. The motives of his resolves are numerous; he has many various ways of yielding to them; he carefully foresees the effects of his conduct. His ego has unceasing opportunities for intervening, for deliberating, and for taking the initiative. Its task is so great even that it would be unequal to it, did not its powerful memory enable it to store up the results of its former deliberations, did it not suppress part of the reasonings through which it has passed, did it not progressively simplify its procedures, did it not establish in itself habits of feeling, thinking, and reacting which greatly diminish its labor. Let us dwell upon this capital point.

The exterior acts of man are of two kinds: the one voluntary and attended by the premeditated and deliberate intervention of the ego; the other more or less unconscious and unattended by that intervention. The latter acts are the results of habits contracted by the individual himself, or bequeathed to him by his ancestors in the form of predispositions more or less susceptible of inducing the same habits under the influence of the right kind of excitations. The ancestral habits, confirmed and consolidated by their repetition from generation to generation, are instincts or instinctive acts. The individual habits, sometimes just as powerful, are of the same character, have the same mechanism, and deserve on the same ground to be called instinctive acts. The following are examples: swimming, following mechanically a path which is daily pursued, drawing one's sword and placing oneself on guard in the presence of an enemy, jumping into the water, without reflecting, to save a fellow-being, copying a page of handwriting while thinking of something else, speaking without knowing what one is saying, etc.

Instinctive acts when totally unconscious have their seat in the spinal chord. A peripheral excitation reaches that organ and is

there transformed into a co-ordinate, reflex movement, the movement which the excitation in question habitually engenders. The excitation extends also to the brain, but that organ is indifferent to it, does not focus its attention upon it, and suffers the movement to be accomplished without its intervention. Nevertheless, the excitation may be perceived, may awaken in the brain analogous anterior sensations which have been stored there, corresponding ideas and motor reactions which are habitually disengaged without the ego's interference or opposition. This is what I call a cerebral reflex act, whereas the preceding case was a medullary reflex act. It goes without saying that the habits contracted, whether ancestral or individual dominate the whole phenomenon. The nervous circuit having been traversed, the response given will conform to the habitual mode of feeling, thinking, and acting, as influenced by said excitation. The ego assists more or less consciously but performs no act of will, or at least executes but a very secondary and feeble sort of volition. Such is the case of the soldier who, transported by his courage, rushes into the face of the most certain danger, or that of a friend into whose arms, yielding to your first impulse, you throw yourself, although he has betrayed you and done you injury. Such are the impulses more or less unconscious, which impel us to commit acts which are frequently in perfect disaccord with our interests, although in accordance it may be with what Kant calls the categorical imperative.

The really voluntary acts are those in which the excitation is the object of serious attention, in which the response is deliberate, its immediate and remote results carefully weighed, the various motives *pro* and *con* collated and compared. Nevertheless, there is constantly heavy pressure brought to bear upon the will, from which the ego has great difficulty in extricating itself. The varying forms of sensibility and faculties which intervene in every intellectual operation are what heredity and personal education have made them. At first the ego perceives, judges, and acts impulsively along the lines in which its ancestral substance swings it. Then it is influenced by the modifications which it has experienced during its life and notably during its infancy, the time when its brain was growing

and absorbed readily everything that was offered to it. It has been moulded by its family, by its first comrades, by its first impressions, by the results of its first acts, by the examples which have been set it, the events of its age, by the success or non-success of its conflicts with society. It believes in what has been taught it and in what it has reached itself by its own observations and meditations. A mode of thought is formed, favorite ideas are acquired of which it is never the master and which control it. It has a lively or obtuse sensibility for some things, and none at all for others. It has an optimistic or pessimistic temperament, it is idealistic or free-thinking. Besides, the ego is subject to general or accidental dispositions, both of brain and of body. A sound brain in a sound body is the first condition of liberty, just as sufficient preparation for the subject under deliberation is the first condition of good judgment. The volitions of the ego are thus a very complicated resultant of numerous and variable circumstances, both internal and external. The ego does not estimate things by the same standard in its tenth, twentieth, thirtieth, and sixtieth year, in the spring and in the autumn, in the evening and in the morning. Nor is its judgment the same with a peasant whose horizon is limited and with the metropolitan whose views are broad, with the proletarian who has suffered and with the rich man who is saturated with indulgence, with the ignorant, the man of letters, and the scholar.

Yet there is one thing that is common to all men,—an ego entrusted with judging what is good, useful, and agreeable for the individual, with making its decisions conformably to its interest, with foreseeing the harmful or advantageous effects of its acts,—in a word, with presiding over the conservation and prosperity of particular individual of which it has the charge. Medullary and cerebral habits enable the ego to restrict its activity in the generality of exterior acts to a mere Platonic surveillance. But as soon as new circumstances throw the least doubt upon the utilitarian character of the habits, its duty is marked out for it, it is bound to intervene, to throw aside all sentimentality, to array itself in the armor of reason, to appeal to its entire experience, to summon all the



light at its command, and to render its decisions in the fullest plenitude of its independence for the best interests of its client.

From these considerations it follows that, setting aside reflex acts which are purely medullary and holding only to acts which are cerebral in their origin and to their species of determinism, three types of ego may be distinguished. The first, which is *par excellence* physiological and which goes back to the very origin of the species, is possessed by man in common with all animals; it has charge of the defence of the individual, and can be inspired for no object but its best welfare. The second is the result of habits acquired by ancestors and transmitted to the individual. The third is the product, in the individual himself, of the circumstances in which he lives, of education, of private habits accidentally or forcibly acquired, of surrounding passions, etc. These two last egos, which are more or less automatic, may be comprised under a single designation, which we shall give later. The first is the animal ego, but active and reasoning; on this we shall dwell exclusively now, reverting later to the two others.

Let us put ourselves in the point of view of the individual who possesses it. "I have a limited time to live upon this planet," he will say to himself; "of the beyond I am ignorant, or rather I know it only too well; the thing is to steer my bark as skilfully as I can and to be happy; not to suffer myself to become a prey to illusions or to be over-powered by sentiment when no profit can be expected from it; not to accept as the truth what reason has demonstrated to be false; to see things as they are; in a word, never to commit, from routine and naïveté, acts whose outcome will not correspond with my intentions. My body, my health, my physical and psychical satisfactions, the sufferings that are to be avoided—such are the things I have to consider. The non-ego has value only through and because of the good which it can bestow upon me, because of the profit which I draw from it, of the happiness which it procures for me. I have had experience with men; I know that if some are good the majority are selfish, are not prone to give something for nothing, and have a solicitude for me only in so far as they believe I can be of service to them. The first thing is to wrest from the



world my independence, not to have need of any one, and to create for myself a safe and enviable position. The esteem in which people shall hold me, the number of my friends, my credit, my power, will be proportional to that independence and that position. The less that I have need of others, and the more that they have need of me, the more will I be sought after. What I love most of all in the world I must confess is myself. Next come my wife and my children. I love them, protect them, because they belong to me, because they do me honor, and because they render back to me the affection which I render them, and because they will have to take care of me in their turn when I have grown sick or aged. So true is this, that if they do not give me the satisfaction which I expect from them, that if they cause me more sorrow than happiness, I shall stifle my sentiments, cast them aside, arrange my life differently, and disinherit them. I love my neighbor because I am rewarded in some way by him; he listens to me, he comprehends me, his conversation is agreeable to me, he is indulgent to me. I am willing even to make certain sacrifices for him on condition that I do not run too great a risk myself. I love the country and society in which I have been born, because they procure for me numerous advantages, although I am quite capable of infringing its laws when they annoy me and when their non-observance will bring on me no inconvenience or penalty. I shall be honest for numerous motives, one of them being because I wish others to be honest with me. I shall be charitable if I am rewarded for it by public opinion and if my sacrifice does not exceed the pleasure I can derive from it. I shall profess the most exalted and most generous principles: stoicism, justice, liberty, solidarity, equality for all; first, because I myself am included among the "all"; then because this may just happen to be my favorite idea or a useful thesis; in a word, I shall make it a point to have incarnate in myself all these virtues for the reason that they are to my best interest. As to going to the bottom of my conscience, as to analysing my motives in all cases, that is all very well but it is useless. I prefer to have a high opinion of myself and to be convinced that I am good and disinterested.

Of what use would it be to confess to myself a truth which would lower me to the level of the animal."

The picture is a gloomy one but it is only too true. Egoism is the essence of the animal ego which we are describing; altruism itself is but egoism disguised (see *The Monist*, July, 1896, p. 552). When the two confront each other, when the other types of ego of which we shall speak are silent, and when the cerebral balance is exact, brute egoism will always carry the day. Suppose two individuals upon the ocean in a vessel. No hope, not a sail on the horizon, with enough to eat for one only; they are dying; the two egos face each other, both eager to live; the one will slay the other. From this extreme case to the lowest case of simple distinction of good and evil, all the intermediary stages are met with. And yet the animal ego is neither good nor bad in the nature of things. If it were not for the difficulty of obtaining a livelihood, for the competition and strife which results therefrom, its sensibility would carry the day, and it would be nothing less than kind. In reality, by virtue of his reason man is utilitarian. The more intelligent and enlightened he is, and the more rigorously he adapts his acts to the objective reality of things, the more "practical" will he be, as it is called in the language of the day.

#### SOCIETY.

Society differs from the individual, as much as the individual does from nature, but in a different direction. The following is the order of gradation: the universe which is the totality of the stellar systems including our own; organised nature which we know of only on our planet; the human individual which is the highest form of organised nature; society which is a mode of life that new conditions have rendered obligatory for the individual. Man has domesticated animals, has invented flint instruments, navigation, agriculture, exchange. Pressed by the same necessity, he has invented society, that is to say, adaptation to his needs for companionship, which hitherto were less urgent, and he has gradually made of it a sort of permanent personality, taking the place of the real but transitory personalities. The following is its evolution.

Among animals the assemblages were at first indifferent, as we have seen, and were formed by imitation among individuals having no motive for hostility. Habit resulted, then a sort of pleasure, finally reciprocal altruism. The individuals constituting the group lived under the same roof for warmth, they formed serried bodies for resisting attacks, they hunted in concert, and assisted one another variously. The weak sought out the strong, the strong protected the weak and naturally became the chiefs. The highest stage reached is represented by the instance of strategy among monkeys which we narrated after Romanes, and by the cases where sentinels have been punished for neglect of duty, or where judgment has been passed by a sort of tribunal.

In man the same two phases recur. The first is spontaneous or altruistic; the second reflective and based upon interest. A special reason is added in the first phase: with man the young remain longer with their parents and continue willingly with the family, which by favoring the maintenance of altruistic sentiments becomes the nucleus of a subsequent society. But man, owing to his intelligence, cannot in the second phase help discerning more and more the advantages resulting from life in common and is forced to go further. Thus defence against enemies with him rapidly takes on a special physiognomy; collective defence becomes collective attack; the passions, the love of domination and glory, mingle with the rest, and the curse of militarism spreads on all hands. Yet within, every one still remains for a long time the master of his acts, and shapes as he pleases his relations to his fellow-men. Customs become established of themselves for each case. But the day arrives when the differences threaten to spread and to compromise the security of all. The general interest requires intervention. Then arbitration is invented, compensation for all kinds of crimes, punishments, prohibitions, etc. Customs become rules, and then laws, the great number of which grows as the population and the complexity of the mutual relations grow.

But in these societies, subsequently to the naïve and patriarchal phase of the fathers and the elders, came a second period, where the more adroit and the more ambitious assumed the task of

controlling the general interests, while the others kept to their ordinary occupations. Thenceforth free reign was given to individualism, which is inseparable from human nature. In the hands of the conductors and administrators the general interest was subordinated to particular interests, society became their special property, and was mismanaged to their profit. Hand in hand with this, as a result of the division of labor and of the transmission of the consequences of the struggle of each for existence, society was divided into groups, for the most part professional, in which individuals, from father to son, became immobilised,—one class reputed noble and filling the highest offices of society, the warriors, the priests, the magistrates; the other reputed inferior, if not servile, the farmers, the merchants, and the laborers. Other groups were added; the strangers, who were admitted into the social group without sharing its advantages, and the conquered who were made slaves. Thus social classes became established,—the negation of the principle of equality of the advantages to be derived from a social state, which from the beginning was necessarily the tacit condition of every system of life in common. The internal social evil which resulted therefrom, and the external evil, the militarism which we have opposed to it, have thus totally falsified society. The initial object was the happiness of all, and greater facility in subserving their needs, each entirely responsible for his acts but enjoying the fullest play for his faculties and the external means for investing them with equal value for all. This result was obtained only for a part of society, the least part, the strong and the intelligent. The others, that is to say, the immense majority, not only gained nothing, but were placed in a condition inferior to that in which they existed in the state of nature. Society is but a hierarchic scale: at one extremity are the privileged by birth, entering into full and immediate possession of all the honors, of all the enjoyments, without having done anything to gain them. At the other extremity are the pariahs who inherit nothing but the misery and the sufferings of their ancestors, and lack the possession of the meagrest arms for struggling, predestined to defeat before having

engaged in the struggle, condemned, they and their children, to the hardest possible fate, often without hope of termination.

At its origin society looked to nothing but the present. When the enemy attacked, all seized arms; and when the combat was done, they returned to their customary occupations. But little by little the levying of the population *en masse*, the successes collectively gained, the treaties concluded for long periods of time, the necessity of extending territory which had grown insufficient for the population, gave rise to a vague sentiment of solidarity of interests, which extended beyond the present moment. The rules adopted for the relations existing between individuals were in themselves an indication of foresight, being as much concerned with children born and to be born as with the present existing generation. The council was a permanent institution, of which new members were chosen when vacancies occurred by death; sometimes the office of chief was hereditary. A tradition was thus constituted. The memory of the past, ancestors held in universal veneration, household gods, the annual ceremonies invoking these objects of worship, solidified the bond. The collective qualities of a tribe, its reputation, its prosperity, all its belongings, formed a patrimony which all took pride in transmitting intact and when possible augmented. Every society which had achieved something became thus a state,—a corporation possessing a genuine capital at once physical, intellectual, and moral, which was increased from generation to generation by many successive acquisitions,—a continuous fictitious personality exerting its authority over real personalities and having no compunctions against sacrificing them to its interests. Such were the ancient municipalities where defence and attack formed the pivotal interests. Such are our modern nationalities,—a guardianship which is not infrequently irksome; a mechanism of the most complex kind; a scientific concentration of all powers.

The strangest thing is that these personalities in their relations with other societies have taken on the habits, adopted the modes of thought and action of a real individual, and that like the latter they seem to be in possession of two egos: one reflecting the tradi-

tion and distinctive character of the nation (altruistic, let us say); the other sociocentric, egoistic, and given absolutely to its own interests,—with this difference, that in diplomatic science the first-mentioned ego is looked upon in the light of a weakness and a sacrifice of self, whilst the second becomes a force, a proof of capacity, a superiority. In international affairs nations who are actuated by sentiment, who base their conduct upon principles and appeal to maxims of duty and humanity, are called chivalrous, whilst those who pursue the policy of results only, and who keep steadily in view their interests, are regarded as utilitarian. If any additional argument were needed for demonstrating that individualism is a synonym for interest and egoism, our powerful modern civilisations would furnish it. Cleverness is the means, our great battalions the sanction. Public opinion is shrewdly respected, because the press supports it, and because at certain crises there is need of it, to say nothing of the occasions when credit is necessary. To divide in order to rule, to reach one's ends even by underground practices provided appearances are preserved, to bend before the strong, to abuse the weak, whether savage or civilised, to succeed without arousing coalitions, such is the international ethics of to-day, as it was in the time of the Prince of Machiavelli. What is there more odious than the so-called "reason of state" (necessary withal), which authorises everything, and which at the moment that I am writing in France causes the same act to be designated on one side of the frontier as patriotism and devotion to country, and on the other as rank infamy. What can be more lamentable than societies all in arms, ready to throw themselves at each other's throats and to sacrifice thousands and thousands of individuals who are not responsible for the causes of the wars waged. If the animal nature is always present in the individual, it is much more so, though under more polite and refined forms, in international politics.

Yet let us not fail to observe that there has been progress. Treaties are no longer broken with the same facility; they have been invested with more form; the favorable moment is awaited. Contracts, comparable to those of gamblers or of operators at the



stock exchange, are now generally kept with faith because answering to a common need. The ordinary conventions which concern international law, and general conventions, such as those which make certain countries, certain water-ways and isthmuses neutral, are constantly gaining ground; arbitration is becoming more common, and strenuous efforts are constantly made to avoid recourse to the *ultima ratio*. Some day there will doubtless be permanent international tribunals for settling disputes between societies, the same as there are now for adjusting differences between individuals; but that day is still remote. A society forming part of a vast federation of this kind will always preserve toward the federal union the same attitude that the individual within it now maintains towards society. Society has its sanction in the punishments which it inflicts. Will the federation of societies we speak of in the future be capable of resorting to the same expedient?

This progressive transformation of a simple and naïve society, given to seeking the best mode of life in new conditions, to extending mutual aid and to realising general happiness, into a complex social stock company, giving good dividends from the high point of view which we shall speak of soon, but distributing its profits and its losses among its stockholders in a most unequal fashion, giving to the one class the favors and the facilities of existence, and to the other the burdens and all the irksome inferiority—is this the end and ideal to be reached? Man has outstripped the animal; he has marvellously developed the system of life in common. But as regards the real object to be gained, he has ended in bankruptcy. We have seen that evolution in living beings makes ultimately in the general direction of the adaptation of the best individuals forming a species to the external conditions in which they are called to live; but that before arriving there evolution strays off frequently into useless and regrettable paths. Such has been the case of man considered from his own subjective point of view. If the evolution of human societies is ever to attain the desired goal we must say that the day is still far distant and that the by-path into which empiricism has conducted it deserves the qualification of

deplorable, whatever passionate admirers of the *laissez-faire* theory may think of it.

But how has this unfortunate deviation been brought about? Why has empiricism, the servant of circumstances, ever led to such a result? It is because nature does not hold the same views as we do, or rather, because it holds none whatever, because it proceeds blindly with its fatal laws, and takes no heed of our opinions or of our desires. It is because the best for nature is not the best for us; it is because man, in order to attain what he desired, ought to have changed himself and transformed his animal nature. At the outset, society conformed to the individual, but this did not last long. The reaction of individuals, one upon another, grew stronger. Some struck and cut about them at pleasure, the necessary relations were falsified; everything was embroiled. Society became a thing apart, an assemblage of conditions which were quite different from what they were at the start, a milieu *sui generis*. But the evil was too deep-seated, the adaptation was not effected. Man has preserved his animal nature, which remains in conflict with his environment. Society and the individual have become antagonistic; what the one demands does not suit the purposes of the other. Social life is a composite of sacrifices often imposed without compensation and greatly exaggerated; the individual desires to be free and fully responsible for his acts. Man is an integral part of nature and is subject to its imperative laws; society is an edifice constructed upon the sand of conventional materials.

This leads us to speak of some of the principles upon which it reposes. These principles will complete our parallel of the three points of view: nature, the individual, and society. For the present we shall reduce them to four: liberty, and its counterpart solidarity; equality, and its corollary justice.

#### *Liberty.*

Liberty is a human conception involving volition. Liberty does not exist in nature where there is never spontaneity but only effects, determined by one or several causes acting in different directions and counteracted by others acting in contrary directions. The

strongest or the resultant carries the day. In plants and animals all phenomena are the consequence of organisation, actuated by exterior or interior agents. So-called acts of will are the results of excitations, which bring into play ancestral and personal habits and the moods of the moment, as we have termed them. The same is true of thought, save that here the excitation is sometimes internal and so bears the appearance of spontaneity. Psychical freedom is relative and depends on the ego. This being understood, the individual in the state of nature enjoys all the freedom his organisation allows. He is restricted in his acts only by material obstacles, his muscular and nervous strength, and his own judgment of his motives for acting in given cases. In the presence of one of his fellow-beings he behaves as in the presence of an animal whom he desires to conciliate or to combat. According as his relations with his fellow-beings grow more extensive, he learns to restrain himself, but only under pressure of force or for some analogous reason. In society he is subject to necessity which places upon his primitive instincts of liberty restrictions which he cannot escape.

To describe (1) the province in which the individual is permitted to move about with perfect liberty, and (2) that remaining province where such movement is forbidden; to describe that which is his and that which is others',—two words have arisen in modern society, *rights* and *duties*. Neither the one nor the other exists in the state of nature. There man does what he wants to and what he can. He has duties towards himself only, and they are of the physiological order. The inalienable rights of the French Revolution are rights that are considered indispensable to the existence of man, and of which he cannot be deprived. They answer to what Thiers has called "necessary liberties." Yet it is admitted that in case of war, or the suspension of social laws, they may be temporarily suppressed. Duties are the correlatives of rights, being the obligation to respect in others what we would have them respect in us. They are embodied in the laws and may be summed up in the phrase "obedience to the laws." They are absolute, and their infraction entails punishment. By their side there are other duties having no direct sanction, being prescribed by custom, pub-

lic opinion, self-respect, veneration for family and ancestors. It is needless in social practice to speak of rights. The individual is only too much disposed to broaden their conception. On the other hand, there is a constant necessity of speaking of duties, which are the momentous point and form the very essence of life in common.

### *Solidarity.*

Solidarity is a physical, functional, or psychical bond between parts. It is extremely widespread in nature. Every body is an assemblage of molecules solidarised by cohesion. In a stone heat, humidity, shocks are propagated from one grain to another; if we separate a grain its solidarity ceases. In organised beings solidarity gives rise to colonies of merids, zoids, demes. In the first stage, cohesion pure and simple is the cause. Take the simplest aggregate of cells. Each cell has its own life and forms a distinct individual, but being joined to its neighbors it is solidarised with them to a certain extent. If one be separated, it continues to live but is independent. In the higher stages the solidarity becomes functional. Each part is specialised, is entrusted with some given function, which it performs to the profit of all the other parts of the colony, just as in its turn it profits from the functions which they perform. In the last stage when the solidarity is complete, all the functional individualities are merged into a single individuality. There is unity.

For the free individual in the midst of a vertebrate species, for example, the word is meaningless. There is neither cohesion, community, nor subordination of function here. Absolute independence is its characteristic. But a relative or psychical solidarity resulting from sympathies, needs, or common interests may be established. Exchange of service is the first stage. If the exchange is repeated and has grown habitual, if it is premeditated, if something is offered for the general use with a view to deriving profit from it, the solidarity is increased, within set limits. Such is the origin of commercial societies and of all professional associations. Society, so called, is the most advanced stage of solidarity. The sacrifices, the advantages, and the responsibilities are divided. Yet the solidarity

is even here not complete. Every individual has his reservations and will not suffer himself to be stript of all his freedom. The first distinction to be established here is that of a state of war or of peace. In the first case the solidarity is complete as regards all the means or needs of common defence. Every individual is under obligation to all the others without their being under obligation to him, as it is in animal colonies which have perfect solidarity. In the second case it remains psychical and general to the extent that when prosperity or misfortune befalls a whole or a part of the community, accidentally or through the administration of the latter, all bear the consequences of it, whether they be good or bad. Similarly, if a change be made in the laws, all either suffer or profit by it. It is this sort of solidarity that engenders the idea of country; it is none other than that of common interests. Solidarity is an *a posteriori* conception. It has been spontaneously and progressively produced as a consequence of life in common. It differs totally from the physical and physiological order of the animal colonies; it has no other sanction than the interest of the individual on the one hand and the law with its coercive measures on the other.

#### *Equality.*

Equality exists in nature, but fortuitously. Here the effect is always equal to the power expended, or to the sum of the powers diminished by the sum of the resistances. But, excepting the case where they counterbalance each other, the power and the resistance are so unequal and so varied that the effects are generally unequal. Two bodies have rarely the same dimension, the same form, the same properties exactly, two individuals the same value. The one will always get the upper hand of the other. Among species as among the individuals of a species, inequality is the rule and is moreover the condition *sine qua non* of evolution. In the most perfectly organised societies equality is merely coterminous with the laws which are common to all. As to the rest it is simply a word, a principle flowing from another principle,—namely, solidarity. But solidarity being purely psychical and restricted according to circumstances, and equality never being complete even in

perfect solidarities—such as those of absolutely unified animal colonies,—therefore equality can make no pretension to being absolute. The foundation of the principle is as follows. Men united in society make equal sacrifices or, more exactly speaking, sacrifices which are regarded as equal, and assume an equal share of the general responsibility. Therefore they must be equally treated and must enjoy equal advantages. But from theory to reality is a far cry. Equality is a magnanimous dream, the cliff on which all endeavors are shattered.

### *Justice.*

There are few words whose signification has varied so much from antiquity to the present day, and so well reflects the customs of the time. In its highest stage it is a pure human conception, which in its most widely accepted meaning is equivalent simply to possessing or receiving what is one's due.

Let us see if there is anything in nature corresponding to this idea. A body rolls through space, enters our atmosphere, becomes incandescent by the friction, and bursts into fragments. A storm arises, the oak is torn out by its roots, the reed bends and straightens again. A wolf pursues a stag who flees, the one to eat, the other not to be eaten; both exert their powers to the utmost; the victorious wolf is recompensed for his perseverance, the stag succumbs through his insufficient powers of respiration. The Tasmanians live happily; the whites invade their island, massacre them, and appropriate their territory. At bottom all these cases are one. Everywhere takes place that which must take place conformably to the conditions and the forces in action. Nature witnesses impassively and indifferently the phenomena of which it is the theatre. The incandescent body, the oak, the stag, the Tasmanians bear down with equal force in its balance. To living bodies as to inert bodies, nothing is due; there is no justice.

Let us now look at the individual and place ourselves at his point of view. He possesses his particular organisation, of which he is not the author, and which it is without his power to relinquish. As Spencer said, "he is subjected to the effects of his own



nature and of the conduct which it involves."<sup>1</sup> It is due to him, therefore, that his acts should have the consequences which they logically imply, that he should reap what he has sown. Upon this condition only is he responsible. If his ego has been deceived, if he has wrongly judged what it is best to do, if he has suffered habit to produce the act, and has not intervened to modify it, if he was distracted or indolent at the moment, if he has reasoned falsely, he suffers the consequences. But if he has been correct in his forecasts and judgment, the benefits and the profits belong to him. This is the conformity of ends to acts,—organic or physiological justice. In the case of the wolf just mentioned, it was justice that its perseverance was crowned with success, whereas in the case of the stag it was unjust that, having put forth his utmost powers to escape a danger, it was after all devoured. A mother carries her infant during the period of gestation, brings it forth in pain, nurses it, and lavishes her care upon it; it is unjust that she is not recompensed and that the child dies. But the following is a complicated case. Two men struggle with weapons which each has at his disposal. The one has greater courage, the other greater skill. Each have a claim upon recompense, but one of them conquers. Where is the justice? From the point of view of nature there is none, for both have obeyed their organisation. The stronger has conquered the weaker. But from the particular point of view of each, justice has been done for him who, having put forth his utmost powers, has succeeded; and injustice has been done to him who, having achieved the same end, was nevertheless vanquished. Individual justice, therefore, is relative. Yet even in this restricted form it has wide import and applicability, for it engenders personal responsibility, and so becomes the moving cause *par excellence* of all human activity, involving the reward or punishment of acts, and impelling the ego to be ever alert for intervening, for adapting its commands to the circumstances, and for looking to its interests. If there were no such justice sanctioning responsibility, conduct would be without a rudder.

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<sup>1</sup> Herbert Spencer. *Data of Ethics. Justice.* 1891.

It may be asked if this responsibility has aught to do with the acts or with the intentions which have inspired the acts. Certainly habits frequently assert themselves without intervention on the part of the ego, but in not interfering it has done wrong and should suffer the consequences. Acts are the only material which lends itself to judgment. Intentions, and the motives from which they spring, cannot be analysed; they form an inextricable labyrinth. The ego and its acts, whatever they be, are solidary and compact.

We have now come to society. Solidarity, as has been said, involves duties on the part of the individual, while reciprocally society has duties which it owes to individuals. Each in its turn is bound to receive its due. Hence social justice,—or the regulations which control and sanction the relations between the two transacting parties. It is a necessity, at once theoretical and practical, for the perfect functioning of these relations, just as above individual justice assured the perfect functioning of the relations between acts and their effects. It renders the individual responsible to society and society responsible to the individual. It is the sanction of the two responsibilities.

But we have seen that theoretically all individuals stand upon an equal footing in society, that is to say, have the same rights and the same duties; for which reason social justice is sometimes defined as the law of equal liberty. On the other hand, social rights and still more so social duties, at least such as society judges to be most indispensable, are precisely defined by the laws, as are also the punishments which ensure their observance, but not the rewards which crown their fulfilment, for to these little thought is given. And hence this other definition: social justice is the law itself, or from another point of view the apparatus and the means designed to ensure obedience to the laws.

Let us recapitulate. There is no justice in nature. In the individual and with respect to that individual, a relative justice exists, which is entirely physiological and is the sanction of his acts, the source of his responsibility, the stimulant to his activity. In society a conventional but necessary justice exists, without which all would be anarchy, which is the sanction of the correctness of

the relations of the social body to individuals, and likewise their guarantee.

Nothing, we believe, shows more clearly the profound difference existing between nature, the individual, and society, than the different acceptation in these three cases of the words which we have just examined. We might stop here and conclude directly regarding the questions which were restated at the beginning of the present chapter, but we must first insist upon a few points in the mechanism of the social evolution which we have skimmed in the preceding chapters.

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Society not being a product of nature but a product of man, evolution in it presents differences which have not been sufficiently remarked or insisted upon. At first it is natural, or such as circumstances and the regular play of individualities have made it, or semi-artificial, namely such as the conscious or unconscious will of man has shaped it. It may even be entirely artificial, if it has been built up altogether by man, regularly and methodically interfering with a knowledge of the causes at work and with a well-defined end in view. Social evolution has individuals as its agents, but as its effects a line of permanent results surviving individuals, possessing in some measure an existence of their own, growing, modifying, selecting, and culminating in a majestic *ensemble* independent of man and of the causes which have given it birth.

Let us first look at the agents or initial factors. The first, as in the evolution of all animate beings, is the expansion of life, and in this particular case social life, that is to say, increase of population, of needs, and of faculties. The second is the variability of individuals, giving rise to individual differences or variations.

We shall begin with the latter, and first take up a few physical characters, such as they are exhibited in anthropometry by figures showing the degree of frequency of the variations about a maximum centre, which represents the type of the character in the group studied. We shall borrow the data from our *Éléments d'anthropologie*,<sup>1</sup> condensing them to the limits of necessity.

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<sup>1</sup>Pages 338, 442, 536.

The height of 424,215 Italian recruits from 20 to 21 years of age varied according to Pagliani as follows:

HEIGHT.	RELATIVE FREQUENCY.
Above 1.80 metres.....	6 in 1,000.
From 1.80 to 1.70 metres.....	142 in 1,000.
From 1.70 to 1.60 metres.....	328 in 1,000.
From 1.60 to 1.50 metres.....	275 in 1,000.
Below 1.50 metres.....	40 in 1,000.

In 1,000 Parisian skulls of the masculine sex, the cephalic index, or the ratio of the width of the skull to its length, varied, according to measurements which we ourselves have made, as follows:

CEPHALIC INDEX.	FREQUENCY.
Above 85.....	in 87 skulls.
From 85 to 80.....	in 268 skulls.
From 80 to 75.....	in 429 skulls.
From 75 to 70.....	in 206 skulls.
From 70 to 65.....	in 10 skulls.

The weight of 183 masculine European brains from 25 to 35 years varied according to Broca and Bischoff, as follows:

WEIGHT.	FREQUENCY.
1500 grammes and above.....	25 brains.
1500 to 1400 grammes.....	44 brains.
1400 to 1300 grammes.....	70 brains.
1300 to 1200 grammes.....	39 brains.
1200 and less grammes.....	5 brains.

It follows from this, that in dealing with the variations of a given character we have to distinguish between the variations which are oftenest repeated in a series and which form the mean group, and those which range above and below the mean and decrease in point of frequency, the extremes in both the higher and lower scales of variation being the rarest variations.

The same is true of sensory and psychical characters. Weismann remarks that while some persons are absolutely incapable of distinguishing between two adjacent notes on a piano, Mozart could detect the difference of a fourth of a note between two violin-strings sounded two days apart. In our psychological laboratories individual variations in the duration and intensity of certain reac-

tions are now measured, but for psychical phenomena recourse must be had to descriptive observation.

These variations bear upon the general *ensemble* of the faculties, according as these are more or less felicitously balanced, that is to say, upon cerebral capacity, upon the mode of association of these faculties (which furnishes the most astounding diversity), or upon the quality of some particular faculty. With respect to each one of these points of view a scale may be formed running from zero to a very high maximum. At the bottom are the variations which denote a perfect absence of faculty, and low variations which give evidence of feeble functioning; the most numerous variations are at the centre; above we find the ordinary higher variations which steadily decrease in number, and at the top, finally, the rarest variations of all are found,—luminaries of the maximum brilliancy which alone emit more light than the whole series together. And from such a scale are produced innumerable intellectual categories: the incapable, the inert, the insignificant, the nulls, the automata, the impressionable, the incoherent, the ecstatic, the contemplative, the positive, the geniuses, etc.

Take a restricted example—the faculty of observation and induction. In 100 individuals 30 will daily pass by an object or be the witness of a phenomenon without seeing it; 30 will see it, but will only make it the occasion of a profitless remark or of some trifling conversation; 20 will distinguish in the object or phenomenon the particular point in which it differs from others; 10 will reflect a moment or so upon it; 5 or 6 will immediately induce from it some idea which they will connect with some other thought and store it up in their memory for later use; 1 or 2 at most will immediately see in it a gleam of light and make it the object of the most felicitous application.

Now the great discoveries,—and this by the way is the first ultimate proposition which I am desirous of establishing,—the great discoveries, I say, the general ideas which wing their way in advance of progress, the things which subsequently give rise to the most useful practical applications, are the product of these higher individual variations. A society restricted to inferior variations

would retrograde. A society having only mean variations, all other things being equal, would be immovable; and whilst the others round about it would move onward in the path of progress, it would remain behind. Every society which has any pretension to holding its own, or which desires to outstrip its rivals, is bound to see that the number of its *elite* individuals is kept constant or increased.

There is more besides. On the one hand the best of the higher adaptations may never come into the environment in which they can be put to use, and may so remain a dead acquirement. On the other hand, the mean or indifferent variations may meet with stimulants which will heighten their efficacy, or with conditions which are suited to their special application, and may so acquire fresh power. In other terms, a physical or an intellectual character derives its real value from the use which is made of it. An individual who in one kind of work amounts to nothing may be strong in one which is fitted to his capacity. Who does not know the infinite diversity of the talents and aptitudes of men! In the intellectual class some demonstrate their rare abilities in the arts, in the sciences, in literature; others in manufacturing and commerce, or in politics. Specialisation here advances far. In the sciences some show an aptitude for mathematics, others for natural history, others for sociology. Even in the same branch aptitudes are different. A person who is given to either botany, geology, or entomology, may be averse to research in the other branches. And even here again there are distinctions. In botany, for example, one person may be good in the description and establishment of species only, another good only in the physiology of plants or in the philosophical problems to which they give rise. A third is interested only in microscopic research or in horticulture. In society the division of labor is infinite; there are all sorts of places for all kinds of activities, for all variations whether high, mean, or low. Long ago Aristotle said that some individuals were born to obey, others to command. In a manufactory where all the employees have the same education, one will never be anything more than a good workman, another a good book-keeper, while a third will be a good foreman, although incapable of being the superintendent. Among the



managers themselves, one is best fitted for selling, another for manufacturing, and another for controlling the establishment generally. In the army it is the same. Some will never be more than common infantrymen, some never more than underofficers; a small number attain the rank of captain; the majority of brigadier-generals never become division-generals; very few have the ability to command an army corps.

In short, there are high and low occupations in society for every one, just as there is an ascending and descending scale of aptitudes among individuals. Yet the two factors, the proper aptitude and the proper place in which to make good use of it, must be made to meet. Each must seek his path in life, essay success in different directions, and if possible find the place where his qualities may be best utilised and his defects entail no drawbacks. The very things that are intolerable defects in one position may be the very best of qualities in another. Nothing can be more rigorously true than the saying, "The right man in the right place."

In society the natural inequality of men loses therefore part of its repellent character. Individuals who are high in the scale for one task are often low in the scale for another. An average individual sometimes renders a greater service in the right place and while performing a work that is much in demand, than an individual high in the scale of capability does by performing a work which is little in demand. It follows that all the efforts of a society desirous of procuring for the mass of its members ready and ample satisfaction of its needs is bound to favor everything which tends to put in the hands of individuals the means of finding out for themselves the best occupation for their faculties, for augmenting their present value, and for realising their special and peculiar happiness.

There is a third reason why society should favor emulation, competition and struggle,—three things which hang together. The activity of an organ, of a function, or of a faculty has the effect of increasing its power and of differentiating it in the direction of the work it is doing. The variations which are most used, and which consequently are most enhanced in the scale during the life of the

individual, are those which have the greatest tendency to repeat themselves in descendants and, if the same exercise is continued, to be confirmed in the general line of descent. A laboring man lifts so many kilogrammes every day, and finally by exercise succeeds in tripling the amount. His son, if he resembles him, and if he works at the same occupation, will attain a higher figure, and will bequeath to his son the predisposition to increase the amount even more. There is evidently a limit, but the muscular force incessantly stimulated in each generation will reach a higher mean than that which would have been attained had the individuals of the series suffered their muscles to be inactive. No hypothesis of Weismann can alter the fact. It is the same with intellectual variations. They will have a higher place in the scale in families which exercise their brain than in those which only exercise their muscles, if the heredity be of the right kind and renders its assistance. It is this that explains the transmission of individual characters acquired by usage or by lack of usage. An indifferent variation, spontaneous in a family, say a special conformation of the ear, the nose, or the chin, some little peculiarity of movement, some peculiar method of thought, will be perpetuated for generations if the chance of marriage alliances operates in the right direction. *A fortiori* when the variation is not indifferent, when it is utilised, augmented by labor, the chances of transmission are greatly increased. The activity which the search for a better employment of the faculties engenders is, therefore, independently of the material products which it yields, the factor *par excellence* which makes for the amelioration of individuals. Every society that has any thought of the morrow, that is bent upon perfecting the species and on rendering the path of life more fruitful to its successors, is bound to respect struggle, if not to encourage it.

We pass to selection in society. Does it take place here among variations which have been utilised just as it does among animals? We know its mechanism in the latter. The strong, possessed of variations which are perfectly adapted to the situation, are perpetuated, while the feeble who possess variations which are imperfectly adapted are eliminated. The law is the same with man

living in a state of nature, whether alone or as the chief of a family. It is the same with primitive peoples who as yet live only upon game and the fruits of the earth. Those who live in favored regions prosper, while those who are forced into sterile regions, whether very cold or very hot, but without water and without game, vegetate and pass away. Later among barbarians of all stripes, among civilised nations and even in the present day when war intervenes with all its horrors, the same selection by death and the suppression of reproduction continues. The cleverest and best armed nation carries the day. In this way a large number of peoples have disappeared whose names have not even come down to us. And we have had in recent times a forcible instance of the phenomenon in the extermination of the Guaranis and the Tasmanians. The primitive races, of which rather the evidence than the actual line have been continued to our day, have been produced by differentiation and the successive elimination of the poorly adapted at a time when natural selection operated in all its original splendor as it does among animals.

But apart from these cases, and as we go farther away from the primitive phase, selection falls off in intensity and changes its character. The first cause of this is the development of intelligence. According as man learns to protect himself against the elements, and finds means of existing where formerly he perished, artificial selection associates itself with natural selection. What else is agriculture, domestication and rearing of animals, exchange, industry, association and changing of customs, if it is not the intervention of the hand of man modifying his original conditions of existence as he now himself modifies the vegetable and animal species which he desires to perpetuate for his own use and pleasure. A second complementary cause of the falling off of selection in the human species is the facility with which the experience acquired in the art and conduct of life is transmitted from father to child, and from the tribe generally to its component members. In animals this transmission operates only through habits or instincts which require a long time to become established. In man, thanks to his possession of language, and to the prolonged space of time during which he

lives in his youth with his parents, and also to tradition which is constantly adding to its store, this education is rapid.

The most patent result of selection in more or less civilised epochs has been the division of society into classes, the one satisfying both its necessary and its superfluous needs, the other satisfying within the barest limits the first only, but still surviving and reproducing itself. The abyss which separates them does not, nevertheless, prevent them from mingling together, the higher classes appropriating the women of the lower. As to mortality, if misery causes it to be greater in the lower classes, in the higher it is augmented by war which these classes make their profession.

War, to which we may here refer again, also changes the character of selection. In the beginning the vanquished were taken and eaten, then they were made slaves, with their existence, at least, assured. For a long time war was a hand-to-hand conflict; courage and strength were the conditions of success; natural selection took its regular course. But when fire-arms were invented death was dealt at a distance without distinction. Selection was transferred from individuals to nations. To-day the change is even still greater. Military conscription seizes upon the strong and leaves behind the weak, who thus become the favored in life.

Even within classes themselves, struggle has changed its character in civilised societies. Its object for individuals is no longer survival, but a greater or less satisfaction of needs and particularly of superfluous needs—the desire for comfort, riches, and higher positions than those in which they are born—the highest possible in fact. In the last century the serfs, grouped about their lord, no longer struggled; they lived wretchedly, but they still lived. But yesterday our peasants were in the same stage. A majority of the proletarians aspire for nothing but slight improvement. In our days any individual having the least disposition to work and to save, can always sooner or later procure a relative competency. Struggle assumes considerable proportions only in the higher classes where there is an unusual need of superfluous pleasures or unbounded ambition. And even in these conditions death is rarely the consequence of failure. What is left of natural selection is a

minimum. Huxley estimates that the social stratum in which it is still operating is represented in England by scarcely five per cent. of the population.

This change in the consequences of struggle, which is now nothing more than normal emulation and simple competition, is in itself a sufficient answer to those who would eradicate it on the grounds of fraternity. The only thing of moment is so to regulate its operations as to prevent it from ever reverting to what it was in primitive societies and among animals. To-day society takes care of its idiots, its cripples, and its orphans; it has asylums of all kinds, and homes and retreats for the aged. Medicine allied with hygiene has almost doubled human longevity. Statistics have shown that the birth-rate is greater among the poor than among the rich, and greater in the country than in the cities, whatever the causes for it may be. Darwin himself admitted that civilisation was opposed in many ways to the free action of natural selection. The truth is that it has been replaced by an unconscious artificial selection which has other effects.

Has this change any connexion with the curious and paradoxical proposition which has been set up, that the average intelligence of man has not increased in modern civilisation as much as might be expected, and that between us and the Greeks of Pericles, as Gladstone and Galton say, and between us and the men described by Shakespeare in the time of Elizabeth (Huxley), the difference is not striking. If we took into account the population, the number of illustrious names belonging to the civil life which antiquity has transmitted to us would be even greater. But there is a distinction to be made. Certainly the Homers, Sophocles, and Aristophanes, the Socrates, Aristotles, and Platos, the Demosthenes, the Phidiases, and Appelles are more numerous and have not been surpassed by the poets, artists, and philosophers of our days. But the Archimedes and the scientists are rare and obscure. And there is no cause for astonishment at this. In the first place a career in letters and in the arts, that is, of thought and of imagination, was easy then, while in the sciences it was difficult. In the second place, literature and the arts are subjective products inher-

ent in individuals, in their experience, in their *a priori* reason, while the sciences are objective products requiring anterior preparation and long series of observations, and demanding the exercise of reason *a posteriori*. I admit that Hippocrates and Galen, and in more recent times Sydenham, if they had possessed the anatomical and biological knowledge of our day, might have equalled our present medical celebrities. I believe that Aristotle as a naturalist, or, taking a man nearer to our time, Descartes, would in the position of Pasteur have been led to the same discoveries. But this cannot be proved, and as a matter of fact it is the average type that must be considered and not the higher individual variations which are met with in all times and in all races. In literature and in the arts one can be a genius in any epoch. In the sciences it is impossible; one depends upon one's predecessors; one can apply only what others have gathered or prepared for him. The proposition in question, therefore, cannot be accepted without a more profound examination than has been given to it by such authors as Kidd, for example. Having no object in view but the establishment of the truth, I have several considerations to advance in its favor, considerations which have long been patent to me.

Intelligence is the product of several anatomical factors, among which the most accessible to comparison is the volume of the brain and when that is lacking, the volume of the cranial cavity which holds it. The brain is extremely rudimentary in the most ancient mammals. It increases in size as we go down the ages, notably so among the primates. In passing from the anthropoids to man, its weight is increased threefold almost, at a single bound,— a fact which renders the volume of the brain the cardinal anatomical characteristic of man. In the human species itself pronounced average differences are found among the great principal races. In the Java and Neanderthal race, the first which is known to us, the cranial capacity is 1,000 centimetres at most. The negroes of Africa have on an average in round numbers about 1,400 centimetres, the negroes of Oceanica 1,450, the yellow races 1,500, and the whites 1,550. (Cubical measurements made by the process of Broca.) These differences may be explained by the selection which



has operated among men in the state of nature, and which has differentiated these races. There are even in the black and yellow groups mean deviations which are also explained by selection. Among the white races it is different; the average deviations are feeble and not what the Darwinian theory would require. Between the races of the Neolithic and the Bronze ages and modern Parisians; between the Parisians of the twelfth and the nineteenth centuries; between the Egyptians of the fourth and the eighteenth dynasty, there is no notable difference. However, the second anatomical factor of intelligence, the development of convolutions in the brain, may have replaced in a measure the increase of volume; but this factor does not lend itself to a comparison of averages. Everything else being equal, a highly endowed intellectual individual may have fine, close, and numerous convolutions with a small brain. For instance, Gambetta. In fine, the question is still an open one; on one side the disappearance of selection explains the existence to-day of a less average degree of individual intelligence than should be expected; on the other the activity of the brain which continues undiminished must tend to increase either the volume of the brain or its convolutions.

Selection in our present societies still operates, but in a different form, and without causing the elimination of the less fit by death. The impulsion, revealed by anthropology, which urges large classes of individuals into the same path of life, is among the number. The following is an example. We know that the Anglo-Saxons and Scandinavians have as a pronounced physiological character their spirit of initiative and of emigration, and as a prominent physical character their high stature. Now, I have shown<sup>1</sup> by the aid of the statistics of Gould, taken during the war of secession, that if the corresponding series in the United States and in Europe be compared, the height is always greater in the United States. Further, if we make the same comparison between corresponding series in the East and in the West of the United States,

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<sup>1</sup>P. Topinard, *Eléments d'anthropologie générale*, p. 452, etc. Paris, 1885. Publisher, Vigot frères.

the stature will be found to be greater in the West. Consequently, setting aside the influence of a change of life and of environment for reasons which I cannot stop to give, the conclusion is evident that the majority of Anglo-Saxons have in their physical and physiological characters been twice subjected to selection: first in emigrating from Europe to the United States; and then again from the East to the West. It is by some such process that certain industrial cities attract the brachycephalic population of the country, and others the dolichocephalic. Marriage operates the same as selection, varying with the country. The professions also exercise a selection of this kind. We have spoken above of military selection. The hospitals also have a selective influence, the mean weight of the brain is here much less than in individuals taken from the enlightened classes.

To sum up, the evolution of societies takes place through the agency of individuals whose activity, being hyper-stimulated by competition, accentuates and develops variations in the direction of the best adaptation to the conditions. It is selection, if you will so have it, but selection by work and not by death.

What is now to be considered are the external products of that activity,—some immediately consumed by the individuals, and others persisting after them, accumulating, reacting upon one another, arranging themselves in groups, and giving rise in their *ensemble* to that marvellously progressive movement which is called civilisation, a movement which was already well pronounced in Græco-Roman antiquity, which then came to a standstill, began again scarcely four hundred years ago, gradually quickened its velocity, and has taken on in the last forty years so great an intensity and momentum that those who have been able to follow it as we have done, are stricken dumb with astonishment, and ask to what it will come, even in the period which is immediately before us.

The evolution of men, with which anthropology is concerned, must not, as we have said, be confounded with the evolution of societies, which is properly the subject-matter of sociology. The one leads to the other, it is true, as the cause to the result: the "cause" being the individuals which succeed each other and die, the

"result" their works which remain after them. These last we have traced and described in the preceding chapters, in speaking of the family, of social forms, of manners, of institutions, of religion, of sciences and philosophy. They are of every class,—physical, intellectual, and moral. They are handed down by language, example, habits, laws, traditions, songs, writing, and printing, and by the objects collected in our museums of art, ethnography, etc. To trace their evolution, to describe how they have followed one another and how they are interrelated, would be to write the detailed history of every branch of knowledge, of every profession, of every industry, of every science, beginning with history, so called, its controlling ideas, general and particular. The broad survey which we have attempted is insufficient. It is in the details that the bonds of connexion are clearly seen. Take, for instance, medicine. To sketch its history even in broadest outlines, one would have to show Hippocrates, collecting his first observations in the art of healing, and attaching memoranda of them to the columns of the temple; the physicians of antiquity dissecting monkeys in order to study the anatomy of man; the latter science arising in the Middle Ages with Mundinus and later with Vesalius; physiology following with Harvey; histology and the many remaining branches not making their appearance until the present century; every new acquisition being the result of others which precede it, each coming in logical order and at its right time. Weismann has written a beautiful chapter on this subject, taking music as his example. He has emphasised how necessary it is to separate individuals from their products, which have their evolution apart. He has separated what I should call musical art from musical science or technique, springing from a few notes constantly repeated, and rising step by step to the highest forms of symphony. But the really most beautiful example, perhaps, of this secular accumulation of the works of billions of individuals who have now disappeared, is undoubtedly the edifice represented by our legislative, administrative, and financial organisation, as it stands to-day. Imperfect, as it may seem to us, and constructed fragment by fragment, retouched, retrimmed, altered, co-ordinated, it is still an

admirable creation. Our laws in France are made up of the Franco-German law, the Roman law, the canon-law of the Church and the successive additions of kings, parliaments, provincial and general estates. In the Revolution they were overhauled and broadened to suit with the reigning ideas of individualism. With Napoleon I. they were overhauled again and made to conform to the prevailing notions of centralisation. Since then they have never ceased being re-elaborated; to-day there is not a minister nor parliament who is not desirous of leaving upon them the imprint of his existence, either by overturning them or improving them.

Every society has contributed to the erection of edifices of this kind. Whatever it has added of its own constitutes its particular patrimony which it transmits enlarged to posterity. Nevertheless, it is distinctive of these social acquisitions, to spread without losing their value, to infiltrate themselves in all directions, and so to become the common patrimony of all civilised mankind. From this treasure, which was very small in the time of the Chaldeans and Egyptians, which was much larger in the time of the Greeks and Romans, and which has been prodigiously augmented in our epoch, all derive profit. Every one draws from it in proportion to its magnitude at the time in which he lives. A splendidly endowed individual might do without it, in the strictest sense, but it would be renouncing his relative chances of success; he would be in the situation of a man in the state of nature. The poorly-endowed individual, on the contrary, who drew largely from it, could arrive at the best results. It might almost be said that in the struggle for existence the treasure amassed by predecessors is worth perhaps even more than personal qualities. Thus, a person starting out in life, and having aspirations in a certain profession, finds ready what his predecessors have learned and perfected in that profession, and what has cost long centuries and entire lives to accomplish. In a shorter or longer time he will be conversant with what is known and will not have to begin *ab ovo*. He enters upon his path at the place where it was left by his predecessors; he has nothing to do but to march on and to extend it, till the day when he in his turn will leave it to his successors.

The marvellous spectacle which the present age offers is therefore not proof of an average intelligence far transcending that of our predecessors, but the result of accumulated capital yielding dividends which constantly grow greater. This is the great economic law which we find in social evolution, just as we do in all things, and which our socialists refuse to understand. The power of the individual of our day has been increased a hundred fold in comparison with the individual of times past who did not have this capital at his disposal. Thus the principal object of the system of life in society is attained,—the multiplication of the powers of man, and that not because union makes strength, but because each profits from the capital which his predecessors have left him and so is enabled to produce more. It must be admitted, however, in justice to all the facts, that never did the individual display more activity than now, and that never were larger numbers engaged from all classes. So also the characteristics of our end of the century is in all branches of thought as well as practice an over-production, not because intellectual capabilities are greater but because the struggle has its full effect, because the higher individual variations are less wasted and the average variations better find their place, and so, let us say again, because the capital which we have inherited is immense.

We may now conclude, and shall give in a last article our practical solution of the problem.

P. TOPINARD.

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## GOD IN SCIENCE AND RELIGION.<sup>1</sup>

**P**OSITIVE knowledge," says Mr. Herbert Spencer, "does not, and never can, fill the whole region of possible thought." However much knowledge may "grow from more to more," there must needs ever be, for our limited capacities, a limitless residuum of the unknown. Still we must perforce think of this unknown, guess at it, form some conception of it, and in some way or other express our conceptions. And we can only do so in terms of what we do know. We must in fact use "symbols."

Undoubtedly the modern philosophy which resolves all things into matter and energy, and accounts for all phenomena by the interaction of these two categories, seems to many minds to have left no room for God. "I have no need of that hypothesis," says the French savant. But the mind will never be satisfied with such a negation. This is simply "to make a solitude and call it peace."

To believe that the human intellect is merely the last and highest product of evolution, the mere resultant of the interaction of matter and force, and that it will come to an end when this globe grows dead and cold, is impossible. That there is nothing higher, vaster, nobler, in all this universe, than the human mind with its limitations, is incredible.

To adopt Mr. H. Spencer's words: "We have an indefinite consciousness of an absolute reality transcending relations"—"an inscrutable power manifested through all phenomena"—"an Ulti-

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<sup>1</sup> Thoughts suggested by Dr. Carus's essay in *The Monist*, April, 1898, on "The Unmateriality of the Soul and God."



mate Reality which underlies all phenomena." This "Ultimate Reality" of the philosopher is, to the theist, God.

But the question—What *is* God? What is the nature, the "suchness," of this Ultimate Reality?—must ever remain insoluble. The words inscribed on the Temple of Isis in the Childhood of Religion, are true still:

Ἐγώ εἰμι πᾶν τὸ γεγενὸς καὶ ὄν καὶ ἐσόμενον καὶ τὸν ἑμὸν πέπλον οὐδεὶς πώ θνητὸς ἀπεκάλυψε.

"I am all that was and is and shall be, and my veil hath no mortal ever lifted."

Still we must think, must guess, must frame theories. And it is remarkable that in those theories, among all nations, in all ages, there should have been so much agreement, as Mr. Edmund Noble has pointed out, in his valuable article on "Some Parallels Between Theology and Science," in *The Open Court* of April last. This article suggests that a *modus vivendi* might be arrived at by all "seekers after God" (to use St. Paul's phrase, Acts xvii. 27). All the various terms used to express the "Ultimate Reality" seem to be aiming at the same thing: although whatever "symbol" is adopted must needs be inadequate, owing to the limitations of thought and, still more, of language; "the incompetency of the conditioned to grasp the unconditioned."

The Christian theist says, "God is spirit." But the question arises, What *is* "spirit"? Is it matter? Is it energy? Or is it a *tertium quid*? Judge Chase's view, which is that of most believers in the immortality of the soul, has been rightly challenged by Dr. Carus (p. 426) as being in fact a materialist one: for his  $d, x$ , attenuated to any degree, is still the product of the factor  $x$ . Mr. Herbert Spencer's formula, "The infinite and eternal energy from which all things proceed," would seem to point to energy as, in his view, the equivalent of the theological "spirit." But he himself shows elsewhere how impossible it is to conceive of energy as abstracted from matter. If then neither of these can be accepted as definitions of (the theological) "spirit," we must have recourse to the "*tertium quid*." And how shall we name it?

It seems to me that the *idea* of Plato—the *εἰδία* of the Greek

Fathers—the *substantia* of the Latins—the *form* of modern philosophy, are, one and all, efforts to express the same thought of pure being: and all fail in the last analysis, because they are but “symbols” to express what “transcends the bounds of distinct thought.”

The word “substance” in mediæval theology, and in such documents as the Athanasian Creed, is an endeavor to express the “underlying reality,” apart from all “accidents,” that is to say in modern terms, apart from all matter and energy. But the word “substance”—and with it the idea it was intended to connote—has through time become perverted: for now, when we speak of a “substantial house” or a “substantial dinner,” we mean the very opposite of “immaterial.”

The same danger of misapprehension and of perversion awaits the word “form”: for “form” inevitably suggests “shape”; and “shape” is too intimately connected with the material “accidents” of any “substance” to be abstracted from them even mentally.

Dr. Carus’s illustration: “That  $1 + 1 = 2$  is eternally true, though matter had never existed”—may be demurred to. For when we think or speak of 1 or 2, we must needs ask, one *what?* or two *what?* The more appropriate formula would seem to be,  $0 + 0 = 0$ , or  $0 \times$  (anything whatever) is still  $= 0$ .

Every term that the theist can use is open to objection from the same cause, viz., the limitations of thought and of language. Such is the case with the word “person” or “personality.” We use it because it is the best we can do. Professor Le Conte (*Evolution and Its Relation to Christian Thought*, Part III. Chap. 6, p. 341) well says:

“I have used the word personality as expressing the nature of God. But let me not be misunderstood. I know well we cannot conceive clearly of an infinite unconditioned personality. Deeply considered it seems nothing short of a contradiction in terms. All I insist on is this: In our view of the nature of God, the choice is not between personality and something *lower* than personality, viz., an *unconscious force* operating nature by *necessity*, as the materialists and pantheists would have us believe; but between personality as we know it in ourselves and something inconceivably *higher* than personality. Language is so poor that we

are obliged to represent even *our* mental phenomena by physical images. How much more, then, the divine nature by its human image! Self-conscious personality is the highest thing we know or can conceive. We offer Him the very best and truest we have when we call Him a person; even though we know that this, our best, falls far short of the infinite reality."

To this agree the words of Mr. H. Spencer (*First Principles*, Part I. Section 31).

"Is it not just possible that there is a mode of being as much transcending intelligence and will as these transcend mechanical motion? It is true that we are totally unable to conceive any such higher mode of being. But this is not a reason for questioning its existence; it is rather the reverse."

The Christian theologian can accept all that.

Mr. Matthew Arnold in *Literature and Dogma* satirised the word "Person" as being anthropomorphic, and sought to avoid all anthropomorphism by his formula, "The Eternal Not-ourselves that makes for righteousness." But Dr. Abbott (in *Through Nature to Christ*) pointed out that the very word "makes" subjects Mr. Arnold's formula to the charge of anthropomorphism, or something lower. An amusing instance of avoiding Charybdis only to fall into Scylla was given by Rev. Dr. McQueary, who a few years ago startled the Christian world by forsaking the "orthodox" faith. He published a work (I have it not by me and forget its title) as his Apologia, in which he gives expression to his recoil from the "anthropomorphism" of Christianity. But when he sets out to give us his own views of the relation between God and the Universe, he says he believes that "God secretes nature as a snail secretes its shell!" Surely any amount of anthropomorphism is superior to this gasteropodomorphism!

We might, indeed, speak of super-personality, as Judge Chase and Dr. Carus suggest: but I fear such a term in ordinary conventional use would convey to the minds of the many no meaning whatever, however appreciated by profounder thinkers.

The illustration which Plato gives in the *Phædo* of the soul being the Harmony and the body the material Lyre, is very beautiful; so also is Dr. Carus's illustration (p. 431) of the rainbow as distinct from the shower on which it appears. The rainbow re-

mains the same, while the raindrops are ever changing. So the ego of the individual persists, while the atoms of his body are in a constant state of flux. But the objection raised by the companions of Socrates was not fully met by him, viz. Though the lyre be not the music, yet when the lyre is destroyed the music is non-existent save as a memory. So when the shower is over, the rainbow is no more. Neither the music nor the rainbow can exist without air-vibrations. And the question forces itself upon us: When the body is dissolved, does the soul—the ego—survive only as the tune or the rainbow survives, i. e., as a memory, or idea, or form, of what once was, or of what will recur when the lyre is reconstructed or the shower falls again?

The popular phrase "the immortality of the soul" and the old arguments on which it was based, viz., that the soul is an immaterial essence, and therefore indivisible, and therefore indestructible, are not, we admit, scientifically tenable. But this does not disturb the Christian, for in fact "the immortality of the soul" is not an article of his creed. We confess, "I believe in the resurrection of the dead." Now, to many this may seem still more absurd than the doctrine of the indivisibility and immortality of the soul. But I think we may see our way out of this difficulty. Dr. Carus says (p. 439): "In the soul-life of mankind are the mansions in which there is room for us all. There we shall be preserved with all our peculiar idiosyncrasies in our personal identity." Every Christian will heartily assent to that: and I conceive the resurrection of the dead means that, and something more. We thereby imply that our future life will be—not a mere memory—not a vague, shadowy, purposeless existence of highly attenuated ether—not like the "shades" of the classics—but an organic one. There are "many mansions" in the Father's house, countless millions of globes around us. May not the Father transport us to some of these, with our memory of the old terrestrial life, "with all our peculiar idiosyncrasies in our personal identity"?—and yet in an organic form suitable to our new environments? M. Camille Flammarion, in his charming romance *Lumen* suggests this. And it seems to me that such an idea is quite compatible with the principles of Monism.

The music will again be heard when the lyre is reconstructed, or rather when a nobler organ is furnished to reproduce it. The rainbow will reappear under more perfect conditions. The ego will have its personal identity, but enlarged and glorified, with capabilities which we cannot now conceive, because in its new environment it will have its appropriate organism. And so we interpret St. Paul's words, that we shall be "not unclothed but clothed upon with our habitation which is from heaven" (2 Cor. v.).

After all, it is a comfort to think that all who hold "the Religion of Science" can come to a consensus on the scheme exhibited by Dr. Carus. We all believe in God the Father,—we all cry, "Nearer, my God, to thee!"—We all hold (p. 425) that "God is not only the Father, but also the Son . . . God is not only the Logos as the world-order, but also the Logos that has become flesh."

These are the great truths: these, however much the "wise and prudent" may speculate as to the mode, are the truths that have all along been "revealed unto babes" (3 Matt. xi. 25), in babes' language, perhaps, but that was needful. The "babes," physical and intellectual, must ever form the vast proportion of mankind; the "wise and prudent"—the profounder thinkers—must always be the few. Is it not well, then, that we should have a popular and conventional terminology in religion for the "babes," even if we adopt an academic terminology to satisfy the "wise and prudent"? In other words, must we not have *always* an exoteric as well as an esoteric presentment of religion? Especially as they both mean the same thing; they both bear the same message, whether to the wise and prudent or to the babes:—"God so loved the world that He sent His Son."

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## LITERARY CORRESPONDENCE.

### FRANCE.

**C**URIOUS in the extreme, but in a measure venturesome, is the work of M. E. PRÉAUBERT, *La vie mode de mouvement, essai d'une théorie physique des phénomènes vitaux*. Life can no longer be regarded as a phenomenon which has a place absolutely apart from the regular chain of events of the world. Nor is it permissible even to say that it is incapable of being reduced to the facts of the antecedent sciences which furnish its conditions; and philosophical biologists refuse to be placed under any restraint in seeking its origin and explanation either by way of theory or experiment.

But where is the origin of life to be found? We have seen M. Le Dantec, who is a biologist by profession, seek its origin in chemistry. M. Préaubert, who is predominantly a physicist, seeks it in physics. For him, biology is a question of mechanics. Life is not a particular mode of chemical reactions, but predominantly a mode of motion; it has for its substratum not ponderable matter but the ether, and consequently is possessed of an intimate kinship with electricity and magnetism.

The albuminoid bodies, our author writes, are not life any more than iron is magnetism; they are simply substances which are *par excellence* fitted for being the vehicle of life. Life is something different; it is a motion of the mysterious ether. The vital movement, accordingly, is prior to the protoplasmic molecule. The beginnings of life may even be connected, and in all probability they must be connected, with the evolution of "globular lightning" so called, viz., with a vortex movement of a particular kind which



is susceptible of stability only in the midst of these albuminoid substances, in which the passage from the mineral state to the living unit is accomplished.

One cannot deny to M. Pr aubert the merit of having supported his venturesome views by interesting arguments. He develops his thesis with great knowledge and conviction. Nevertheless objections to his position crowd forward. The author assumes at the very outset that "a dead body is not differently composed from a living body," which justifies his seeing in life a distinct property or energy introduced from without. But it is only too evident that this comparison of a dead body to a living body is founded upon appearance only, and that M. Pr aubert becomes involved here in a false interpretation of morphological facts. I also criticise him for having quitted the path of possible explanation in order to enter that of impossible explanation. He neglects chemical phenomena, which border on biological phenomena, in order to pass at a bound to physical phenomena, whereas these last are connected with life only through the necessary mediation of the laws of chemistry which represent higher and more complex facts. We have here a fault of method, a fundamental error which vitiates the whole theory and leaves only its fragments standing.

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M. CYRILLE BLONDEAU shows in *L'Absolu et sa loi constitutive*, genuine literary talent and comprehensive erudition, together with great philosophical vigor. Possibly he expounds his doctrine in too diffuse a manner; his work might have gained by being reduced; and the composition as a whole would have been better, I think, had M. Blondeau advanced more rapidly to his final chapter, and had made this the central point of his demonstration and views.

The doctrine of M. Blondeau is well indicated by the title of his work. A fundamental opposition exists, according to him, between the point of view of sensibility and that of reason. There is no bond uniting the operations of the senses to those of the mind. If the data furnished by the senses are the materials of mind, they

must nevertheless not be conceived as principles or as truths. The senses give us relative results only; but science must give us the absolute. Things are only relations; but they are relations within the infinite. The contradictions inherent in things from the point of view of science are dissipated in the absolute, which is necessarily undetermined.

But how can the consideration of the absolute, in which man is thus submerged, be made fruitful? What is its "higher law"—the law by which we can descend again from the universal existence formed by all the relations between phenomena, to the phenomenal world itself, in order to pursue there the necessary consequences of the supreme principle? This law is formulated as follows: "The mutual relation of the constitutive elements of anything whatever is in inverse proportion to their relation to the environment containing them." Or: "The force which goes to make up a whole, viz., any object whatever, is the opposite of the force which makes of that object a part, that is, an element of some other object. We have here, as M. Blondeau himself says, a new expression of the old principle of Anaximenes that the order of nature is merely the equilibrium of contrary forces.

This law, the author asserts, is really a "higher" law because it is not subject to any particular limit, and it does not depend, as particular laws do, upon facts which cannot have existed in the past, or on such as can ever cease to exist in the future. It clearly implies the infinity of being, because in the case of every single thing there must necessarily exist external relations for keeping up the relative equilibrium of its elements. Undoubtedly, "it is not possible to comprehend" this absolute and thoroughly undetermined being, but "that of itself is reason,"—a conclusion which will not perfectly satisfy either the spiritualists or the idealists, or even the majority of metaphysicists, who are bent on finding the explicative reason of the world in mind rather than in the principles of universal mechanics, abstract and comprehensive as its formulæ may appear.

The last work of M. F. LE DANTEC, *L'Individualité et l'erreur individualiste*, is in the main a polemical composition. The author

recalls his conception of individuality, protests against the erroneous interpretation of the determinist doctrine by certain Catholic authors, and combats the thesis of the late E. D. Cope, according to which consciousness, instead of being an epiphenomenon, preceded the organism and was the *primum mobile* of all organic structure. I hold the same theory of the ego approximately as M. Le Dantec does. At least I am of opinion that it is only by beginning with determinism that we can hope to lay the foundations of a stable psychology. What philosophical biologists should start with is not in my opinion the existence of a spiritual substance or of a hypothetical virtuality, but the possible and probable signification of consciousness and mind in the economy of the universe. The best informed philosophy is not bound to prohibit flights of induction, provided its conjectures are always submitted to tried methods of experience, which alone can furnish solid data.

M. GEORGES FULLIQUET in an *Essai sur l'obligation morale* takes up questions which have been treated a hundred times, and re-thinks them after his fashion,—a salutary exercise for a young philosopher,—but in the present case, as it seems to me, unproductive of new views. For M. Fulliquet obligation is not a bond created by life, but a power (or an experience) imposed by God. Owing to moral obligation, there is something unchangeable in nature, despite the fact that this unchangeable something does not depend upon man. M. Fulliquet offers us, accordingly, a new formula for the doctrine of innate ideas,—a doctrine which appears correct or incorrect, according as the facts of consciousness which are declared innate are germs which are destined to evolve in the course of life or are products which require neither time nor effort to reach their maturity; in other words, according as experience dispenses with mystery or as mystery invades experience.

M. F. PILLON publishes *La philosophie de Charles Secrétan*. It is a good critical work on the doctrines of this philosopher, who certainly possessed some genuine merit as a thinker, but who in my opinion was not of sufficient importance to found a school.

The metaphysics of M. Secrétan, says M. Pillon, is merely a philosophical theory of the great Christian dogmas, and his ethics a philosophical theory of Christian morals.

M. GASTON MILHAUD, in *Le rationnel*, claims creative power and originality for the human species, but he seems to understand by these words two distinct things, which are not equally clear. In his treatment of the Bacons and the Comtes he champions the rights of rational science, which must not suffer itself to be enthralled by the notions of sensible reality,—the right, namely, of constructing hypotheses or “rational laws” which serve to embrace in brief and simple formulæ the greatest possible number of facts. Science, in fact, is merely a way of thinking the world, and it is permissible to think it in various manners, in other words, in the manner which suits us best. But the value of our hypotheses always finds its conditions in the facts. It requires a concordance between *ideas* and *things*, and I do not understand very well the privilege which M. Milhaud claims for the Idea, which according to him is not determined either by immanent (subjective) solicitations or by the external (objective) solicitations which suggest it. Such a privilege supposes a doctrine of the human soul to which the author has not succeeded in giving a sufficiently precise and personal expression.

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The study of M. HENRI LICHTENBERGER, *La philosophie de Nietzsche*, is the first to appear in France upon this philosopher, and will certainly find numerous readers. M. Lichtenberger has sought rather to tell the story of Nietzsche than to criticise him, and I think he has done well. Nietzsche has not a philosophy exactly; he is an *individual*, a psychological curiosity,—or, shall we add, a diseased personality? It would certainly be ungenerous to discredit absolutely the work of this thinker because he ultimately succumbed to insanity, and I do not mingle the least animadversion with my judgment of this unfortunate writer. I cannot refrain, however, from remarking with M. Lichtenberger that sensibility constantly determined and overruled the intellect in the case of Nietzsche; that his philosophy proceeded originally from senti-

ment, and that his reason varied with the disorders of his physiological health in a far higher measure than is ordinarily the case with sound and robust writers. Besides, Nietzsche is predominantly an artist, a man of emotion rather than of intellect. He constructed his theories according to the passions of the moment, and in order to justify or to allay those passions, without ever confining himself to an attentive or impartial observation of things. He is at once impulsive and logical, has a systematic bent but a disordered brain. The poet that he is, and the thinker that he is, conflict with rather than support each other. His most correct views seem disordered or chimerical. He exaggerates even the truth itself. His pages are filled with violence and bitterness, with *naïveté* and pride, with unbounded skepticism and infantile cruelty. In reading him, I obtain a higher regard for simple people and am surprised to find myself blessing "philistine" honesty.

If the work of M. ALEXIS BERTRAND, *L'Enseignement intégral*, addresses itself mainly to French readers, it will nevertheless be interesting to a large circle of readers. M. Bertrand proposes the organisation of a secondary system of instruction designed for the masses of the people, and in continuation of the primary school a system of instruction so organised and so conducted that it would soon grow general and replace the classical system of our lyceums. In a word, it is the substitution of the modern for the ancient type. M. Bertrand appeals to the authority of two great names,—that of Descartes and that of Comte. The pedagogical work of the former is in general unknown, while that of the latter is misconstrued and disfigured at pleasure.

It would be ungrateful not to praise the effort of M. Bertrand. Eighteen years ago I defended with energy a project which was quite similar to this, and which was based upon the same thought. I had in mind the people of our towns and country districts whom I called "the bourgeoisie of manual labor." The only point on which I would criticise the author is that he has endeavored rather to crowd erudition into his work than to analyse carefully the social conditions which justify it; I could also have wished less literary elegance and more force. But we should remember that M. Ber-

trand is addressing in the first instance the university world where he will encounter numerous adversaries before acquiring allies.

With M. PAULIN MALAPERT, *Les éléments du caractère et leurs lois de combinaison*, we take up again the question of ethology which has been much studied of late years. It cannot be said that the science of character has as yet found assured principles in psychological physiology. It has simply been better formulated and been pushed to greater depths, which is in itself much. M. Malapert does not flatter himself with having advanced a definitive theory. He limits himself to the work of criticising and recasting. He takes exception to M. Pérez and M. Paulhan for having exhibited rather the manifestations and the forms of character than its foundations; he criticises M. Ribot and M. Fouillée for having simplified things too much. M. Ribot, according to him, has failed to recognise that there exists a *voluntary* as well as an *intellectual* class; he was wrong (but I do not think so) in not having seen in intelligence a secondary factor only. In accord upon this point with M. Fouillée, M. Malapert nevertheless criticises the latter for having adhered to the rigorous classification of Bain (*emotional, intellectual, volitional*) and with not having brought his classification into relation with that of temperaments, upon which it pretends to be founded. The classification which he proposes is a mixture of that of M. Ribot and that of M. Fouillée. In fine, M. Malapert establishes six principal classes which are purely abstract (viz., *apathiques, affectifs, intellectuels, actifs, tempérés, volontaires*); and these classes express simply the domination of this or that general psychical function without predetermining the aspects which that function covers in a reality. The sub-classes or kinds would then be obtained by intermixture, and the reciprocal influence of the principal traits. Thus the *apathiques*, for example, are sub-divided into *apathiques purs, apathiques intelligents, and apathiques actifs*.

Practically these six classes are acceptable, but theoretically are not so well justified. The author, in my opinion, has done wrong in placing upon the same plane classificatory characters whose physiological or psychological value is quite unequal and which are not sufficiently distinct. I shall say no more upon this



point to-day (I refer the reader to what I wrote upon it in *The Monist* for April, 1892, July, 1894, and for April and October, 1896). It remains to be said that M. Malapert believes that character can be a personal creation, and that free will is a force capable of affecting the transformation of the individual—an assertion which is correct or incorrect according to the qualities of character which we have in mind, or according to the "reactions" which we consider.

I shall simply mention my own book, *Les croyances de demain*,<sup>1</sup> and along with it the following works: by M. MAURICE PUJO, *La Crise morale* (Perrin, publisher); by M. ANDRÉ LEFÈVRE, *L'histoire, entretiens sur l'évolution historique* (Schleicher, publ.); by M. SIGHELE, *Psychologie des Sectes* (Giard & Brière, publ.); by M. A. VACCARO, *Les bases sociologiques du droit et de l'état* (*ibid.*); by M. SOULIER, *Des origines et de l'état social de la nation française* (*ibid.*); by M. DOBRESIO, *L'Évolution du droit* (*ibid.*) and finally the work of M. A. ESPINAS, *Les origines de la technologie* (F. Alcan, publ.), a very learned work on which I should have liked to say something, and to which I shall probably have occasion to return.

L. ARRÉAT.

PARIS.

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<sup>1</sup>All works previously mentioned are published by Félix Alcan.

## DISCUSSIONS.

### GOD IN SCIENCE AND RELIGION. REMARKS ON CANON LOW'S ARTICLE.

It is a great satisfaction to me to find myself in agreement on all main points with a theologian of Canon George J. Low's rank, a man of high standing in his own, the Episcopal Church, and just recently marked out for distinction by a Presbyterian university (Queen's University, of Kingston, Canada), which has conferred upon him the honorary degree of Doctor of Divinity. He scarcely takes an exception to any essential proposition of mine and goes so far as to concede in substance the symbolical significance of Church dogmas. He says:

"After all, it is a comfort to think that all who hold 'the Religion of Science' can come to a consensus on the scheme exhibited by Dr. Carus. We all believe 'in God the Father—we all cry, 'Nearer my God, to Thee!' We all hold (p. 425) 'that 'God is not only the Father, but also the Son. . . . God is not only the 'Logos as the world-order but also the Logos that has become flesh.'

"These are the great truths: these, however much the 'wise and prudent' may speculate as to the mode, are the truths that have all along been 'revealed' unto babes' (3 Matt. xi. 25); in babes' language perhaps, but that was needful. "The 'babes,' physical and intellectual, must ever form the vast proportion of mankind; the 'wise and prudent'—the profounder thinkers—must always be the few. Is it not well, then, that we should have a popular and conventional terminology in religion for the 'babes,' even if we adopt an academic terminology 'to satisfy the 'wise and prudent'? In other words, must we not have, *always* 'an exoteric as well as an esoteric presentment of religion? Especially as they 'both mean the same thing; they both bear the same message, whether to the 'wise and prudent or to the babes: 'God so loved the world that He sent His 'Son.'"

There are minor points on which I would take exception to Canon Low, but I shall merely mention them without discussion, for they are mere side-issues, on which I trust we shall easily come to an agreement.

Language is not poor. It is true that language employs allegories and imagery; it represents the intangible by tangible similes. But that is natural and necessary.

Language transcends the sensory by imparting to it a spiritual significance. That is the method of language and so long as we can use language both for depicting all the realities of life including its spiritual truths and for communicating our highest and best thoughts to others, it cannot be regarded as poor. In my opinion language is rich. Think of its simple means consisting of a limited number of sounds; yet these sounds can become the vehicle of all the spiritual wealth of mankind. It is true that we sometimes—nay frequently, and always when our souls expand in spiritual growth, feel the dearth of new words to express the new thoughts and ideals budding in our hearts. In such a condition, it is true, we feel the poverty of language—but that is only the poverty of *our* language, not of language. A new expression is needed and, if the same need is felt by others, it will be found. A word will be invented to describe the new thought, and he who has felt its thrill and has become familiar with the connotation of the new term will be stirred by its sound and will rejoice at the power of the word. Words are the most potent realities in life, and the significance of words, if they express truths, is possessed of a pre-existence which has been from the beginning. The significance of language, the meaning of the word—i. e., of truth, which is the soul of the word,—is divine; it is eternal; it is the creative law shaping the world, the logic of facts; the *raison d'être* in the evolution of worlds. It is in and with God, being God Himself. And God becomes incarnate when the right expression is found for a truth.

This is good Christian doctrine and I believe that the author of the Fourth Gospel meant what he said:

"In the beginning was the word, and the word was with God, and God was the word."

The word, viz., the significance of sounds or the truth conveyed in language, although not a material thing, is a reality; it is the most powerful reality in life; it is God incarnate.

The message which the Fourth Gospel proclaims to the world, is that of the incarnation of the word. Of what use is God to us (God in any sense), unless he finds a dwelling-place in our bosom? The order of nature is a Moloch that mercilessly crushes whatever happens to conflict with its forces; but it becomes beneficial and its curses change into blessings, as soon as it is understood. This explains the truth of Christ's word: "No one comes to the Father except through me." It is through the word, through the comprehension of nature's laws, that we learn to appreciate the divinity of the cosmic order.

Here Matthew Arnold's famous formula fails to be satisfactory that "God is the power not ourselves that makes for righteousness." The philosophical significance of Christianity consists in the idea that God must be "a power in ourselves that makes for righteousness." God's divinity appears only in his incarnation as love, hope, charity, mercy, goodwill, in a word as moral endeavor. He only who sees the son, sees the father. Inquire into the laws of nature, and it may be that, considering the ruthless cruelty of its arrangements, you will turn away from life

with disgust; but feel the thrill of human sympathies and ideal aspirations, and you will find a purpose in existence; you will find a field of duties, you will find life worth living.

Man is essentially (as Noiré said) a speaking animal, and man's rationality is an incarnation of those eternalities of existence which we call the cosmic order. Man is divine, and the morally perfect man, the man who embodies the universality of reason as goodwill toward all, is God incarnate. His is the logos that has become flesh.

Life in itself is mere activity; but spirit is activity guided by reason. Reason, through language becomes incarnate in life, and thus spiritual life is begotten; for what is spirit but the rationality of life. Spirit is not a being endowed with language but language itself is spirit. Says Christ: "The words which I speak they are life and they are spirit."

Now the contention is frequently made that words or thoughts are realities only when living beings pronounce or think them; while we ought to bear in mind that words—if expressing a truth—are realities which exist for ever and aye. Canon Low says:

"That ' $1 + 1 = 2$  is eternally true, though matter had never existed,' may be 'demurred to. For when we think or speak of 1 or 2, we must needs ask, one 'what? or two what? The more appropriate formula would seem to be  $0 + 0 = 0$  or  $0 \times 0$  (anything whatever) is still  $= 0$ ."

This is the echo of the old nominalistic school, which regards the word as an empty sound, a mere *flatus vocis*, a convenient mode of expression without any objective significance. We must insist on the significance of the word and on the actual value of abstract truths. If the sentence  $0 + 0 = 0$  be true, the other proposition  $2 \times 2 = 4$  is not less true. Canon Low would have the absolute truth of the purely formal sciences restricted to the zero equations  $0 + 0 = 0$ , or  $0 \times 0 = 0$ ; but the history as well as the philosophy of mathematics will reveal the remarkable fact that zero is an abstraction of much higher complexity and involving greater difficulties than concrete figures. There are, or at least there have been, mathematicians who hold the theory that while all the figures are real, nought is nothing, chimerical and unreal. Bear in mind that zero finds its counterpart in infinitude, and while neither zero nor infinitude are concrete things, they are symbols of real significance which serve to reveal important truths. Think only of such equations as

$$\frac{1}{\infty} = 0; \quad \frac{1}{0} = \infty; \quad \log 1 = 0; \quad a^0 \text{ (viz., any number to the zero power)} = 1.$$

All equations and propositions are mere instances of rationality itself, which is possessed of an intrinsic necessity. Even if there were no material existence, if we could annihilate all the milky ways with all they contain, the purely formal truths would remain as true as ever. They are not substances, they are not things in themselves, they are not essences of any kind; but they are true and they are in-

trinsically necessary. Nor are they only true in the numberless concrete instances of facts, but also abstractly; and their application comprises the world of figures as well as the realm of the zero.

It is through the facts of experience alone that we become acquainted with the world of the superreal, of the laws of form, of intrinsically necessary relations, of uniformities, of the eternal as underlying the transient phenomena of sense-experience. The supersensible is given in the forms of the sensory world, but it exists independently of any single fact and also of the sum total of all single facts as absolute truth, as intrinsic necessity, as eternal law (or whatever you may call it).

The thoughtful among the theologians of the present day are powerfully touched by the monistic tendencies of the age, and the oneness of science and religion begins to make itself felt. The sentiment finds expression in prose as well as in rhymes, both in the pulpit and in the pews, in sermons and in hymns. The following anonymous lines are a faithful expression of this conception:

"God is Love," and God is Beauty;

God is Music, Truth, and Light;

God is Hope and God is Duty;

God is Morning, Noon, and Night;

God is Joy and God is Sorrow;

God is Pleasure, God is Pain;

God is Yesterday and Morrow;

God is Loss and God is Gain.

"God is Patience, Trust, and Trial;

God is Waiting, God is Zest;

God is Promise and Denial;

Purity, and Peace, and Rest;

God is Star, and Mount, and Valley;

God is River, Lake, and Sea;

God is Field and Crowded Alley;

God, the Lily on the Lea.

"God is Body, God is Spirit;

God is Whole and God is Part;

God is Word and All Who Hear It,

God is Mind and Soul and Heart;

God is all things that he sendeth

To the creatures of his love;

Sun and storm he wisely blendeth

Earth below and sky above.

The New York *Sun* publishes, under the date of May 27, 1898, the following item:<sup>1</sup>

"The Rev. Dr. Lyman Abbott of Brooklyn preached last Sunday a sermon in which he gave a history of a change which has taken place in his theological views during the last thirty or forty years, intimating that it represents a change which has become extensive in the world of orthodoxy.

"He said that he began by believing in a personal God, Who 'dwelt on a great white throne surrounded by His angels,' Who made the world and ruled it 'as a King over men,' and Who 'sent His Son into the world to bear the penalty' 'of men's violation of His law, 'and let men go free.' Dr. Abbott believed then 'in salvation and the resurrection as taught in the Christian theology.

"His feeling and conviction, however, have changed radically. Now God is 'to him 'in nature and its indwelling force'; the 'one underlying cause.' He recognises no longer 'a radical distinction between the natural and supernatural; 'the natural is supernatural, and the supernatural is natural.' Creation is 'a continuous process.' 'Universally and continually creating,' God is 'not ruling over 'creatures, but in them.' 'Christ is the condition of salvation, because Christ is 'God coming into human life. Incarnation is no longer an episode standing by 'itself.' 'Little by little God made Himself known to men, until at last He came 'into one incomparable life.'

"Finally Dr. Abbott says that he 'no longer looks forward to a great day of 'resurrection.' 'We are all in process of resurrection.' 'Death goes from the 'cradle to the grave, and resurrection goes along with it.' 'Every spring is a new 'creation.' 'The flowers that bloomed in Eden were not more created by the fiat 'of Jehovah than those on this pulpit.' 'If your soul leaves the body, the body 'crumbles and dies; so if God were drawn from the universe it would become 'dust.'

As the pews are always more illiberal than the pulpit, the New York *Sun* adds the following comment:

"Dr. Abbott undertook to distinguish this from pantheism, but no such distinction is possible. His creed eliminates wholly the personality of God, and 'makes of Him only a force in nature. 'There is,' he says, 'only one law and 'force—God.' That of itself is a very good definition of pantheism. His God is 'without the element of personality, and his Christ is only this 'one law and force' 'coming into 'one incomparable life.' He does not speak of affection extending to 'God as a personal Being, and what he says of the Incarnation takes away from 'Christ all divine character, making Him human only.

"Such is the pantheistic creed confessed publicly by a Congregational minister 'of this time."

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<sup>1</sup> This extract may not be reliable, for it is compiled by one who is greatly dissatisfied with Dr. Abbott's sermon.



Judging by the reputation of Dr. Lyman Abbott, we are inclined to believe that the famous successor of Beecher is not more pantheistic than we. There is, of course, a truth in pantheism, but pantheism as an identification of God and the All is wrong. There is a oneness but no sameness. But it is natural that one who has never been confronted with the philosophical problem of the existence of God will regard any solution offered by a thoughtful man as pure atheism, or as pantheism.

God is not a being, not a concrete individual, not an ego, thinking successive thoughts, yet He is a systematic whole, an organised entirety, a body<sup>1</sup> of omnipresent eternalities and necessities, bearing all the features that condition the rationality of personal beings and giving character to the world-order as well as being the standard of measurement for the moral ideals of all living creatures. God is distinct from the sum total of concrete existences. He is not a pantheistic All-Being, but the truly supernatural Allhood of all existence, including all possible existences.

P. C.

<sup>1</sup>"Body," not in the sense of a material object, but in the sense of a system.

## BOOK REVIEWS.

**THE WILL TO BELIEVE.** And Other Essays in Popular Philosophy. By *William James*. New York, London, and Bombay: Longmans, Green and Co. 1897. Pages, xvii, 332.

The position of the militant critic of this book is an extremely delicate one. We have in its brilliant expositions, its elucidative insight, its sincerity and wholesomeness of purpose, so much to be thankful for, that it would seem the part of captiousness only, to submit it to even the kindest stricture. But the book carries upon its own front the imprint of its merit, and praise from us would be supererogatory. It is one of the most inspiring and suggestive pieces of philosophical writing that have issued from the American press,—a fact which dispenses us *ab initio* from dwelling on its manifold excellences.

The book is made up of ten essays or addresses, which were delivered from time to time before the Philosophical Clubs of several of our American universities. Their titles are as follows: *The Will to Believe*; *Is Life Worth Living*; *The Sentiment of Rationality*; *Reflex Action and Theism*; *The Dilemma of Determinism*; *The Moral Philosopher and the Moral Life*; *Great Men and their Environment*; *The Importance of Individuals*; *On some Hegelisms*; *What Psychical Research has Accomplished*.

The first four are concerned "with defending the legitimacy of religious faith." The topic is boldly treated. Professor James has grasped the bull by the horns. There are no side thrusts or flank blows here. "I admit," he says, "that were I "addressing the Salvation Army or a miscellaneous popular crowd it would be a "misuse of opportunity to preach the liberty of believing as I have in these pages "preached it. What such audiences most need is that their faiths should be broken "up and ventilated, that the northwest wind of science should get into them and "blow their sickness and barbarism away. But academic audiences, fed already "on science, have a very different need. Paralysis of their native capacity for faith "and timorous *abulia* in the religious field are their special forms of mental weakness, brought about by the notion, carefully instilled, that there is something "called scientific evidence by waiting upon which they shall escape all danger of "shipwreck in regard to truth. But there is really no scientific or other method

"by which men can steer safely between the opposite dangers of believing too little "or of believing too much. To face such dangers is apparently our duty, and to "hit the right channel between them is the measure of our wisdom as men."

We have in these four introductory essays also a rough outline-sketch of Professor James's philosophy,—a philosophy which is outspokenly pluralistic, which is permeated with an air of blankest despair at ever finally solving the problems of the universe, which sees no criterion of certitude in either science or reality, which revels in chance and indeterminism, and soars with the loving, fluttering heart of a bird over that vast and bottomless pit where lies the "unclassified residuum." It is the "unclassified residuum" that troubles Professor James, as it has troubled many a philosopher before him; and so he has shifted the centre of gravity of philosophy from the things that we know to the things that we do not know, (and in their current formulation, never can know,) taunting us with these, and basing all his argument upon them. Objectivism he virtually discards; subjectivism is the *determining* factor of all opinion and conduct,—we had almost said of nature. Everything is feeling and sentiment, "organic needs" and "organic delights," "dead hypotheses" and "live hypotheses"; while Truth floats gloriously and majestically on, "in maiden meditation fancy free," on the trackless main of uncertainty and nowhere-ness. No one in the past has ever had full and perfect reasons for his beliefs; nor will any one in the future have full and perfect reasons. Such is the *mechanism* of belief. Hence the philosophical or rather practical *justification* of belief, *quâ* belief.

Here, as throughout the book, we see the *psychologist*, not the philosopher. We have the analysis of men's actions, but not their rectification, not their rationalisation. Of philosophy, however, we ask guidance towards the truth, and not a recital of the ways in which error has been committed in the past and continues to be committed in the present, with the consequent advice to go on committing errors in the same way in the future.

In fact, Professor James, despite the undeniable essential truth of his doctrine, has pressed the philosophical implications of this point too far. There *is* "absolute verity" in the world, running in a descending scale from pure logic and mathematics through the physical sciences down to ethics, religion, and sociology. Here, owing to the complication of factors, it apparently dwindles away; but it exists nevertheless. There is at the core of all these questions a skeleton of the same formal truth that sanctifies mathematics, and that promises salvation here also, when the right facts have been enlivened by it. And when through research the right facts are forthcoming, then, though the result remain a "dead hypothesis" to humanity for ages, it is nevertheless the Truth, and the men of "dead hypotheses" and the men of "live hypotheses" will disbelieve in it at their peril.

We take the following quotation from Professor James, illustrating this point: "As a matter of fact we find ourselves believing, we hardly know how or why. "Mr. Balfour gives the name of 'authority' to all those influences, born of the in-

"tellectual climate, that make hypotheses possible or impossible for us, alive or "dead. Here in this room, we all of us believe in molecules and the conservation "of energy, in democracy and necessary progress, in Protestant Christianity and "the duty of fighting for 'the doctrine of the immortal Monroe,' all for no reasons "worthy of the name. We see into these matters with no more inner clearness, "and probably with much less, than any disbeliever in them might possess. His "unconventionality would probably have some grounds to show for its conclusions; "but for us, not insight, but the prestige of the opinions, is what makes the spark "shoot from them and light up our sleeping magazines of faith. Our reason is "quite satisfied, in nine hundred and ninety-nine cases out of every thousand of "us, if it can find a few arguments that will do to recite in case our credulity is "criticised by some one else. Our faith is faith in some one else's faith, and in "the greatest matters this is most the case. Our belief in truth itself, for instance, "that there is a truth, and that our minds and it are made for each other,—what is "it but a passionate affirmation of desire, in which our social system backs us up? "We want to have a truth; we want to believe that our experiments and studies "and discussions must put us in a continually better and better position towards it; "and on this line we agree to fight out our thinking lives. But if a pyrrhonic "sceptic asks us *how we know* all this, can our logic find a reply? No! certainly "it cannot. It is just one volition against another,—we willing to go in for life "upon a trust or assumption which he, for his part, does not care to make."

There are a vast number of distinctions to be made here; and a vast deal of the implied argument of Professor James is unsound. I believe that the logarithm of 3 is .477123, though I have never calculated it, not because I find it so expressed in Vega's tables, but because I have in my hands the means of verifying Vega's result, and the same means that he and his predecessors employed. My faith is his faith, but merely because his faith is *reasoned* faith. I believe that the length of the mean solar year, taking Le Verrier's determination, is 365 days, 5 hours, 48 minutes, and 46 seconds, not solely because my faith is Le Verrier's faith, but because, with the proper instruments and the proper training I or any other man, can repeat Le Verrier's determination with approximately the same results. Or, to take an historical case, I do not believe that Joshua made the sun stand still because it is impossible for the sun "to stand still"; some day the sun may "stand still"; not having been in Gibeon at the time, I cannot say but that the sun did "stand still." But if the sun really did stop in its course on that historic day, I say simply that the event offered a problem for contemporary Jewish *science*, and not for contemporary Jewish *theology*.

The "uniformity of nature" is never anything more than it is; like Kant's *reine Vernunft* it is empty and marvellously elastic. When it is interrupted, we do not say that the connexion of the things of the universe is broken; we say simply a new problem has arisen which we must explain by the discovery of existing unseen factors, or by adapting our old scheme of explanation to suit the new

facts. The order of the electrical, thermal, and optical facts of the world remains unaltered, because they are never other than they are, be they what they may; and if our schemes of explaining this order have changed much in the course of three centuries, it is nothing to the discredit of the facts. When, however, we have thoroughly exhausted a province of facts, when we have set up a scheme of abstractions which *completely* covers the facts, then there can be no breach of uniformity,—an interruption in the scheme of explanation is an interruption in the scheme of nature. This is a matter of logic, an application of the principle of identity. The same facts cannot contradict one another; an interruption, a break, if it is really such, merely puts a phenomenon out of court, merely gives rise to a problem. So far as the elements of explanation and the elements to be explained are always the *same*, there our predictions, our science is supreme, and no mysticism can unthroner it. We can get no more out of a thing than we have put into it. Silk purses are not made from sows' ears, nor celestial mechanics from Joshuas. The sole elements here involved are masses, times, and spaces. These explain the motions of bodies; the motions of bodies are uniquely determined by these. By the logical law of converse, the Joshuas, and all their riotous, chaotic train, are excluded. This is not a matter of historical evidence, not a matter of faith in the uniformity of nature, but a matter of logic.  $A=A$ , exit Joshua! Joshua is, both in the forcible phraseology of the day and in the preordained, God-established, twin-born scheme of science and nature, the *λογος* and the *φύσις*, not "in it."

But the Joshuas are the type of chance, chaos, and arbitrariness in all departments of research. So far have they sunken in human regard as determining elements in the sciences of mechanics, physics, and astronomy that even the most Christian and orthodox professors do not hesitate to apply the name of the great Jewish leader as a humorous appellation to their heliostats. And the time will come when even as regarding the early history of Christianity and the genetic significance of Christian doctrines the most orthodox members of the Church will be as clear as the majority of them now are regarding the significance of Joshua's achievement. This is not a matter of "organic need." The organic needs will still exist and by some will be satisfied. But they will be satisfied at their peril. There are men to-day who believe that the earth is flat and that the sun moves around it. The question whether they are satisfying their organic need is one thing, and the question of the astronomical truth of their doctrines is another. The organic needs of a savage tribe undoubtedly explain their science. The fault is not with their science; the fault is with their organic needs. Clifford was not so far wrong as Professor James believes in proclaiming it a sin to accept a belief on insufficient evidence. If his utterance on this point is to be considered merely as the expression of his organic need, it may be argued that the organic needs of men have values which vary enormously in significance. The opinion of *one* man, says Galileo, may be worth the belief of *ten thousand*, and the same is true of the "organic needs" of Professor James. The question is not whether Clifford's cos-

mic emotions find no use for Christian feelings, whether Huxley belabors the bishops because there is no use for sacerdotalism in his scheme of life, whether Newman goes over to Romanism because a priestly system is for him an organic need and delight, but the question is whether the conduct of each or of all these men accords with reason and consorts with the actual state of present inquiry and present truth. Newman found his reasons by the very logic which Professor James employs in his book. That it was his organic need to go over to Romanism explains his conduct, just as Professor James's organic need explains his pluralism in philosophy. But it does not *justify* his conduct. The test which must be applied has nothing to do with organic needs or personal predilections or environmental compulsion, but it is distinguished precisely by the absence of those personal needs, predilections, etc.

In principle, there is nothing new in Professor James's position. It has been a maxim of philosophy from time immemorial that "pure insight and logic" are not the only things that produce our creeds. Our conduct, says Hume, is determined by our inclinations and desires, not by our reason. The same maxim holds too in all social and political life. When princes want war, said Frederick the Great, they declare it and call in afterwards their historians and juriconsults to give the reasons for it. But what we require of philosophy is the statement not of criteria of conduct which we know to be in the main false, but the criteria of conduct which we are certain in the main is true. People may choose between Huxley and Newman in consonance with their organic needs, but the choice is far from indifferent. If it were, the real problems of life and the world would be a hopeless chaos. Our footing would never be sure, and we should stand face to face with a hopeless, flabby, degrading, and impotent agnosticism. No one can deny that we are far nearer the solution of the great vital questions of conduct in certain directions than we were a thousand years ago, that the personality of Christ, the significance of Christian dogmas and Christian ethics take a quite different shape in our eyes than they did in those of the mediæval theologians and even of such master minds as Pascal. With the widening horizon of science and research new and grander problems will unquestionably arise, and it would be the rankest blasphemy of research and of the divinity of truth to maintain that the solution of the special questions which are engaging us to-day will never be compassed, whether they bear on science or on ethics. In the sense in which the development of knowledge generally proceeds they too will be solved, as many of them have already been solved. The Galileos and Lavoisiers of ethics and sociology will come, and when they enter joyously the bounds of Sheol with their spoils and the insignia of their conquests, they, too, will remember their Shakespeare and greet the philosophic shade of Professor James, as it sits musing on the banks of the "stream of thought," with the same words with which Henry IV. greeted the tardy Crillon after the great victory: 'Hang yourself, brave Crillon! We fought at Arques, and you were not there.'



Professor James hopes to give to the world before he leaves it, a more systematic and rigorous exposition of his philosophical views. When he does so, we trust that he will supply explicit information regarding some very essential things that he has here left unsaid. When a philosopher says that such and such a thing is not explanation, that nothing that science and human ingenuity can devise is explanation, we have a right to ask of him what *he* regards as explanation, and to challenge him to give an *example* of what would satisfy *his* explanatory yearnings. If nothing can satisfy them, we shall be perfectly justified in committing them to the care of the epistemological pathologist. The same criticism is applicable to all such assertions as that "facts are opaque," that at bottom there is only "mere fact and givenness," that "of experience as a whole no account can be given," etc. To these assertions every man, whose opinions are thus impersonally assailed by a philosopher, may rightly reply: "If facts are opaque, give me an example of what you regard as translucent; if 'mere fact and givenness' is insufficient, what sort of rationality, or 'non-fact,' or 'non-givenness,' would you, just by way of instance, replace it by; if 'otherness' bothers you, what sort of a feeling would you regard as a cure of your ailment, not in order that I may supply it, but in order that I may share your joy at your discovery and escape being belabored by you for not being a companion in your misery; in fine, you have only the right to denounce my way of explaining things on condition of your indicating either positively or negatively a better way."

Such is one of the questions that a positive philosophy will seek to answer. From his position as well as his genius we have a right to expect such an attempt from Professor James. It is not by brilliant destructiveness that the highest philosophic conquests are made, but by positive acquisitions. In *The Will to Believe* Professor James has shown the Hume side of his genius; in his next work let him display the Kantian; and then the glory will be ours of having accomplished in a life-time what it took "effete" Europe a century to achieve. T. J. McCORMACK.

THE ORIGIN AND GROWTH OF PLATO'S LOGIC WITH AN ACCOUNT OF PLATO'S STYLE AND OF THE CHRONOLOGY OF HIS WRITINGS. By *Wincenty Lutoslawski*. Longmans.

*On peut être honnête homme et faire mal des vers.* One may be a very clever and learned man and write a perverse book in support of a fantastical theory. Mr. Lutoslawski is a clever and versatile man as his ability to write correctly and vigorously in four or five languages proves. His industry and gifts of rapid acquisition are sufficiently evidenced by the short time he has taken to study and extract if not to assimilate Plato and an enormous mass of technical literature about Plato. But his big book on the origin and growth of Plato's logic is a tissue of fallacious reasoning, wrought on the frame of an impossible method. This the sober critic is compelled to say despite his admiration of Mr. Lutoslawski's talent; and having said it he is bound to prove it by citation and indisputable fact.

The problem which Mr. Lutoslawski undertakes to solve is the exacter determination of the chronology of the Platonic dialogues. In a general way it is known and agreed that the *Laws* is Plato's latest work; that the minor Socratic dialogues are for the most part early; that the *Republic* occupies an intermediate position; that the *Symposium* was written soon after the year 385, and that the *Timæus* falls between the *Republic* and the *Laws*. The place of the *Parmenides*, *Sophist*, *Statesman* and *Philebus* has been much debated. Zeller still assigns them to a supposed Megarian period of Plato's development preceding the *Republic*. Of late the consensus of scholars tends to put them after the *Republic*. This conclusion is made probable by the general resemblance of style and vocabulary to the *Laws*, by a certain loss of dramatic vivacity replaced by an affected heavy elaboration of style, and by the concentration of the interest on problems of classification, dialectic and the metaphysical criticism or interpretation of the theory of ideas. The last argument, however, must not be pressed too much. The stress of attention is altered; but the problems and solutions of these metaphysical dialogues are not merely foreshadowed but distinctly suggested in the *Republic*, *Theætetus*, *Phædrus*, *Cratylus* and *Euthydemus*. This fact makes it forever impossible to base a detailed chronology of Plato's writings upon any theory of the necessary evolution of his thought. There are certain metaphysical problems which the play of primitive thought converts into vexatious logical fallacies. Plato devoted two or three dialogues to an analysis intended to dispose of these fallacies forever. This task he may have undertaken at any time after reaching his maturity. The conceptions were always present to his mind, as might be proved by citations from the *Charmides*, *Lysis*, *Euthydemus*, and *Republic*. To determine dogmatically the time he selected for working them out in their most explicit form we must look for other evidence. This evidence Mr. Lutoslawski finds in the statistics of style interpreted by what he calls the science of stylometry. Tabulating with laudable industry the observations found in some thirty or forty miscellaneous studies of Plato's style, which he accepts without verification, he establishes a list of some five hundred stylistic peculiarities including such features as the use of a particular rare or technical word, the preference for this or that type of adverbial phrase or interrogatory formula, the frequency of some particular word formation, or the use of a philosophical term in some special sense. The *Laws* being the latest of Plato's writings the relative dates of other presumably late works may be roughly determined by the percentage to the page of the peculiarities which they have in common with it. This latest group, the *Sophist*, *Politicus*, *Philebus*, *Timæus*, *Cratylus*, and *Laws* may be similarly used as a standard of comparison for all other dialogues.

In the application of this method Mr. Lutoslawski displays great ingenuity. He distinguishes accidental, repeated, important and very important peculiarities. A very important peculiarity scores four accidental peculiarities, an important peculiarity three. In this way a coefficient of chronological affinity is worked out to two places of decimals for every important dialogue. The *Laws* is credited with

718 units of peculiarity of the later style. The *Apology* with only 16 units has a relative affinity of 0.02. The *Phædo* with 0.21 is later than the *Symposium* with 0.14.

There is not much profit in debating this method with Mr. Lutoslawski. We may grant his general contention that it is ideally possible for "science" or rather omniscience to determine the dates of a series of writings by this method and yet remain sceptical of his ability to prove in this way that the *Symposium* necessarily preceded the *Phædo*. Mr. Lutoslawski accepts his facts in the lump from previous investigators. Some experience with Platonic "literature" moves me to say that I should hesitate to base the slightest inference on any amount of such "facts" without independent verification.

The evidential value of a stylistic "peculiarity" may depend wholly on the question of the dependence of style on subject matter, and who is to estimate that? Take for example the feature of "apodictic" answers,—answers that express a strong assent. Of what value are statistics that ignore the fact that such answers will be most frequent where Socrates is arguing with a friendly or consenting interlocutor? And more generally, what confidence can we place in the entire method before it has been tested in detail on some body of writings whose dates are known, but not known to the experimenter, and before in this way some definite canons of psychological probability in the matter have been established?

From this elusive subject then I gladly turn to the second and larger division of the book in which our author endeavors to confirm the results of the stylometric method by tracing the necessary order of development of Plato's logic. Here again it is impossible to join issue on the general proposition.

It is *a priori* possible that Plato's philosophy and more particularly his perception of elementary logical principles were in a continuous state of development and transformation throughout his fifty years of intellectual life. It is psychologically conceivable that, as Mr. Lutoslawski affirms, he at first regarded the ideas only as Socratic general notions, then hypostatized the idea of beauty alone in the *Symposium*, elevated this hypostasis in the *Phædo* to ethical and mathematical ideas and even to ideas of manufactured objects in the *Republic*, and then in the *Theætetus* and *Parmenides* abandoned this doctrine for the view that the ideas are merely the concepts of a mind. But it is also possible that Plato's thought was fixed in its main outlines before he reached the age of forty, and that he habitually throughout his writings treats all general concepts as transcendental ideas whenever it suits the theme, the rhetoric, or the mood of the hour. The second view I believe to be correct, because I find no passages in Plato inconsistent with it. The former I deem erroneous, because those who maintain it are always driven to foist upon Plato distinctions not found in his text, and almost invariably garble and mis-translate their quotations in excess of the measure permissible to human fallibility. Here we enter upon the domain of verifiable facts. In order to prove that in the *Timæus* the ideas are nothing else than God's thoughts, Mr. Lutoslawski translates

νοήσαι μετὰ λόγου περιληπτόν, "which exist in reason" (p. 474), or "included in thought" (p. 477). It means, of course, apprehended by pure reason in contradiction to sense. On page 403 the drift of the argument in *Parmenides*, 132 C, is utterly misapprehended, the quotation is garbled, and the answer of Socrates, misquoted, is pieced on to a portion of the question of Parmenides, to whom the whole is attributed. On page 288, *ἐν τῷ εἶδει*, *Rep.* 402 C, meaning "in the body," is interpreted "in ideas." On page 329 the severity of the *Republic* is contrasted with the leniency of the *Phædo* on the ground that according to the latter the murderer of his father might be pardoned after a year. It is the man who strikes his father. On page 383, *Theætetus*, 155 A, B, is grossly misinterpreted. Socrates merely says of certain contradictory beliefs that they contend with one another in us,—in our souls. This is interpreted: "The axioms are here said to be *in the soul*, whereby it becomes clear that we are no longer dealing with transcendental ideas as in the *Phædo*, but with subjective notions." The theory of ideas is obviously not in question at all. On page 464 a sentence from *Philebus*, 13 A, is utterly misrepresented. The Greek means: don't trust this (fallacious) argument that blends in indiscriminating unity the most opposite things." Our author's interpretation is: "We must not attempt a reconciliation of all contradictions."

Mistakes of this character, though easier to detect and demonstrate, are as nothing compared with the false points, mistaken inferences, irrelevant parallels, unwarranted distinctions and arbitrary assertions that abound throughout the work. I will venture a few illustrations in spite of the lack of space to support them by argument. On page 201, *Crito*, 47 A, is cited to show that in the earlier dialogues Plato estimates a judgment according to its moral value without postulating an intellectual standard of truth. The point is a false one as the entire context shows. On the very next page, 48 A, Plato speaks of the "truth in itself" in the same connexion. On page 206, *Protagoras*, 336 E, is wrested from its proper application. On page 210, *Euthydemus*, 289 B, is utterly misconceived in the paraphrase: "Plato is so proud of his acquired certainty of knowledge that he would not give it up even for immortality," etc. On page 211 it is sheer nonsense to say that the hypothetical method taught in the *Meno* is employed in *Euthydemus*, 284 A and 287 E. On page 213 three citations are slightly garbled or docked. On page 232, *Gorgias*, 461 E, is quoted to illustrate the narrowness of Plato's earlier patriotism as compared with the more cosmopolitan tone of later writings. The words are ironical. But the point is a false one anyway. On page 229, *Cratylus*, 433 E, and *Politicus*, 261 E, have nothing to do with each other. Page 239, the new meaning of philosophy, "first explained in the *Symposium*," is explicitly stated in *Lysis*, 218 A. Indeed, all the points made on the changes in the meaning of "philosophy" and "dialectic" throughout the book are false ones. Page 250, Plato does not affirm in *Phædo*, 82 C, that the philosopher becomes equal to the gods, but that he goes to dwell with them. On page 284 the stress laid on the peculiar position of justice in the republic is fallacious. Plato or any Greek who had read

Theognis, 147, at school could at any time make justice the virtue *par excellence*. Cf. *Gorgias*, 477 C and 527 B. On page 317, *Republic*, 602 D, is quoted as a distinct advance on the thought of the *Phædo*. But the passage is almost identical with *Protag.*, 356 D, which our author thinks earlier than the *Phædo*. Page 373, the innocent phrase, *Theætetus*, 184 C, D, "soul or whatever we must call it," is pressed to this result: "In earlier work Plato used the term soul as free from every ambiguity. Here we see already a trace of doubts about the existence of the soul," etc. A comparison of *Crito*, 48 A, and *Symposium*, 218 A, will show that the phrase is a harmless literary flourish.

Obviously this sort of thing is endless. There is no limit to the false points that can be made about a subtle dramatic writer like Plato by means of irrelevant parallels, confident assertions that this or that idea occurs for the first time in such or such a place, and exaggeration of the significance of casual phrases in disregard of the total context. The illustrations here given are not one fourth of those noted. I do not wish to seem discourteous. Mr. Lutoslawski's book, as I said in the beginning, shows him to be a very clever man. There is room for interminable debate as to the value of his general method and his conception of Plato's development. But his reasoning from page to page is a series of fallacies resting on misapprehensions of the fair meaning of the text and context of his author. That is a fact. And a critic surely should be permitted to state facts.

PAUL SHOREY.

LA STRUCTURE DU PROTOPLASMA ET LES THÉORIES SUR L'HÉRÉDITÉ. By Yves Delage, Professeur à la Sorbonne. Paris: C. Reinwald & Co. (Schleicher Frères). Pp., xiv+878.

As all roads lead to Rome, so do the current problems of biology find their focus in the problem of the cell. The present volume embodies the most important results which have been reached by the eager and almost feverish researches of the last decade upon the structure and physiology of the ultimate optical unit of living matter.

Professor Delage devotes some most interesting pages to a statement of the reasons that induced him to undertake his laborious task. From the point of view of method he would distinguish four great periods in zoölogy: the first period being typified in the studies of the external form and markings of organisms, undertaken by such workers as Aristotle, Linné, and Buffon, and extending into the early part of the present century. The second period is distinguished by the recognition of the necessity for delving deeper into the recesses of the organism; many observers had felt this need, but Cuvier was the first to stamp dissection as a real method of investigation and to carry it out to its logical consequences. The impulse given by Cuvier lasted for half a century and has not yet spent its force. A third period, however, may be said to have begun with the establishment of marine laboratories, which introduced a different method of work as important as those that had gone before and



gave birth to the new and absorbing science of embryology. The fourth period, likewise, may be said to be characterised by a new method, the extension and elaboration of histological technique, which in its turn made possible for the first time an accurate study of the cell. It is thus that our author paves the way for an indictment of certain tendencies in modern biology, which is certainly full of discretion as well as truth. Professor Delage sees that some of his fellow-workers are still stranded on the shallows of the old methods, while the main current of biological research is sweeping by into wider and deeper channels. To illustrate his point, he gives a leaf out of his own experience. "I made my *début* in the natural sciences by a monograph upon the circulatory system of the edriophthalmous crustaceans. I expended much time and some skill in injecting a number of these animals. And with what result? The knowledge that the heart has such a form and such dimensions, that it sends so many arteries forward (four or five more than was supposed), and so many back, the existence of which was not previously suspected, and that there exists in front of the nervous system a remarkable vessel that was not known before."

"Of what value is this? In what respect has it enlarged or modified our conception of the crustacean or of the circulatory function? The really important fact was made known long before by Milne Edwards when he showed that the blood came to the heart from the gills, was launched by the heart into the arteries which conduct it to the organs of the body, and that it passes finally into the general body cavity and into lacunæ by which it finds its way to the respiratory apparatus. Beyond this what does it matter that such a one of the mouth-parts receives its artery from such a point of the aorta or some one of the branches? We have not to make surgical operations upon these animals."

This all has a singularly familiar ring and may perhaps serve to stir other than French biologists to a sense of some sort of distinction between the essential and the non-essential. Professor Delage takes the broad view that it is our present task to attack the great problem of general biology, not in a general final assault but by a slow and patient yet sure approach. "One should no longer content oneself, as so many do to-day, with dissecting, staining, sectioning, drawing whatever happens to be not yet dissected, stained, sectioned, or drawn. All these things must be done no longer to fill a minute lacuna in our anatomical or histological knowledge, but to solve some biological problem however small." It is the *decisive experiment or decisive observation* for which we should strive.

The point of view of the work will be easily inferred from these extracts. The book itself is divided into four parts: The Available Data (about one-third of the volume), Special Theories, General Theories, and the author's own conclusions and summing-up. Nowhere else will be found a clearer or more interesting portrayal of the present situation of biological investigation. The burning questions of heredity, variation, and sex, and the special themes of regeneration, cellular division, the rôle of the nucleus, and the significance of the centrosome, are here dis-



cussed with a lucidity and a wealth of illustration and reference which should aid in stimulating research and in diverting the industry and zeal of many workers into lines of activity where every stroke will count and every new fact will mean some real progress.

There are a few simple figures and diagrams in the text, the scope of the volume apparently forbidding very copious illustration. A comprehensive bibliography is appended to the volume, and there is an index more adequate than is frequently the case in books of this sort. The press work is admirable.

UNIVERSITY OF CHICAGO. EDWIN O. JORDAN.  
**THE EVOLUTION OF THE IDEA OF GOD: AN INQUIRY INTO THE ORIGINS OF RELIGION.** By *Grant Allen*. New York: Henry Holt and Company. 1897.  
 Pages ix, 447.

Whatever may be the ultimate position assigned to Mr. Grant Allen's work, there can be no doubt that in many respects it is a remarkable production. It must be so accounted if for no other reason than that its whole argument is based on the conception of the continued life of the dead, a conception which is substituted for the animism which since its formulation by Dr. E. B. Tylor has become accepted almost universally as expressing the general idea entertained by primitive man in relation to the observed activities of nature. Of course Mr. Allen is not the first to make that change, or rather to recognise the important rôle to be assigned to the spirits of dead men in primitive belief. This was done particularly by Mr. Herbert Spencer; and in my own *Evolution of Morality* the same ground was taken, as it was later by Mr. J. G. Frazer in his very able work *The Golden Bough* to which the author of the present volume expresses his deep obligations. Mr. Allen regards his work as a reconciliation between the schools of humanists and animists headed respectively by Mr. Spencer and Mr. Frazer, with a leaning towards the former, but at the same time as giving an original synthesis of the subject. It must be supposed, therefore, to have considerable novelty and if half the claims made for it in this respect be well founded, Mr. Allen's work will justify itself, whatever may be the fate of its main conclusion.

In his Preface, the author furnishes a list of the views which he considers novel, and as it gives a good idea of the contents of his work, its chief features may be reproduced here. He refers to two points especially as new: the complete demarcation of religion, as practice or worship, from mythology, and "the important share assigned in the genesis of most existing religious systems to the deliberate manufacture of gods by killing." This is one of the cardinal notions of the book a large portion of which is assigned to its development. Among its other novel ideas, Mr. Allen enumerates the following: "the establishment of three successive stages in the conception of the life of the dead, which might be summed up as corpse-worship, ghost-worship, and shade-worship, and which answer to the three stages of preservation or mummification, burial, and cremation; . . . the entirely new

conception of the development of monotheism among the Jews from the exclusive cult of the jealous God; the hypothesis of the origin of cultivation from tumulus-offerings, and its connexion with the growth of gods of cultivation; the wide expansion given to the ancient notion of the divine-human victim; . . . the suggested evolution of the god-eating sacraments of lower religions from the cannibal practice of honorifically eating one's dead relations; and the evidence of the wide survival of primitive corpse-worship down to our own times in civilised Europe."

This is an imposing array of conclusions and it must be admitted that Mr. Allen has supplied strong evidence in support of them. They all have a distinct bearing on the evolution of the idea of God, which is the subject of the work, and particularly has the survival of corpse-worship which the author regards as the starting-point of such evolution. Nearly all the other matters referred to have a relation, direct or indirect, to this fact, and when combined with the deliberate manufacture of gods by killing which, as we have seen, is one of Mr. Allen's cardinal notions, corpse-worship furnishes the key to his theory of the evolution of the God idea. Of course, the corpse which is regarded as sacred carries with it the notion of the spirit of the dead man as still living, and in more or less intimate association with the body or its remains. There is no difficulty in establishing the general belief in such a connexion, which accounts, as the author points out, for the care with which the head or skull of a dead person is often preserved. Mr. Allen argues ingeniously that burial and cremation had their origin in the endeavor to get rid of the presence of the spirits of the dead; with little practical result, however, as first ghost-worship and then shade-worship was substituted for corpse-worship, the difference being one of refinement of spirit existence, not change of spirit nature. By worship is meant the ceremonial offering of food or other things to the spirit or god, which is at first a satisfaction of the wants of the dead to prevent them from injuring the living, but afterwards becomes developed into the sacrifice intended to insure the active interference of the deity on behalf of his followers.

Ancestral-spirit worship may be regarded as the natural process; but mankind was not satisfied with the gods thus obtained, and set about the manufacture of artificial gods. The former may be regarded as the family or tribal gods, and they would suffice so long as the wants of their descendants and their mode of existence continued the same. That the "manufacture of gods by killing" originated in changes such as attend progress in civilisation would seem to be required by the nature of the artificial gods. One class of these consists of foundation-gods, that is the spirits of human beings who have been buried beneath a building to give firmness to its foundations. It has been usual to ascribe this practice to a desire to appease the earth-demons, but it can hardly be doubted that the intention was, as Mr. Allen insists, that the spirits should become actual guardians of the place where they were buried. The practice belongs to what Mr. Speth terms "builders rites and ceremonies," and it is marvellous how tenacious it has been. It is not surprising that the barbarous custom has survived to the present day among uncivilised peoples.

tured peoples, but it appears to have not been unknown in Europe down to five hundred years ago, especially in connexion with city walls and gateways. The other great class of artificial gods consists of the "gods of cultivation." Mr. Allen thinks that cultivation of the soil began in the unconscious sowing of seed upon the newly turned ground of a burial plat or barrow. Among other food offerings at a grave would be seeds, some of which would take root and produce a crop of grain, which a savage would presume came from the spirit of the dead, who, "pleased with the gifts of meat and seeds offered to him, had repaid those gifts in kind by returning grain for grain a hundredfold out of his own body." This view of the origin of cultivation of the soil is as rational as any other that has been proposed, and it is supported by the fact that many peoples of varying degrees of culture have been accustomed to sacrifice human victims "whose bodies are buried in the field with the seed of corn or other bread-stuffs," and sometimes a portion of the victim's blood was mixed with the grain in order to fertilise it. The story of the Meriah sacrifice of the Khonds of Orissa has become almost classic, although it is paralleled by reference to the customs of other peoples, particularly the ancient Mexicans. Mr. Allen remarks on the fact that an expiatory value attached to the Meriah sacrifice. The death of the victim was supposed to ensure not only good crops but also immunity from all disease and accident.

Mr. Allen believes the Christian legend to have been mainly constructed out of the details of the early god-making sacrifices, and as the establishment of this point would seem to be the chief aim of his laborious work, this notice may well be concluded by some reference to that subject, and to the bearing of the facts collected by him on the evolution of the general idea of God. Now there can be no doubt that the Christian legend reproduces very closely in many of its details the incidents which accompany the artificial production of the corn-gods and of the wine-gods, of whom Dionysus is a type of earlier paganism. The sacrament in which the body of Christ is eaten in the form of bread and his blood is drank as wine is such an identification. Christ was recognised as God and man like the earlier deities, and he is regarded as the son of, and in a sense one with, the older ethnical deity, and thus "he is offered up, himself to himself, in expiation of the sin committed by men against divine justice." He voluntarily submits to death, and is also bought with a price, as with the Meriah of the Khonds and similar victims. There is a curious analogy throughout the whole subsequent procedure. "The sacred victim is cruelly scourged that his tears may flow. . . . The episode where Herod and his men of war array the Christ in a gorgeous robe is the equivalent of the episode of the Mexican king arraying the god-victim in royal dress, and is also paralleled in numerous other like dramas elsewhere. The women who prepare spices and ointments for the body recall the Adonis rites; Pilate washing his hands of the guilt of condemnation recalls the frequent episode of the slaughterers of the god laying the blame upon others, or casting it on the knife, or crying out, 'We bought you with a price; we are guiltless.'" There is nothing improbable in

all this, seeing that, as Mr. Allen points out, Christianity united in itself all the most vital elements of the religions then current, and all the old religious ideas crystallised around the person of its founder. In the doctrine of the bodily resurrection of Jesus, which is the central idea of Christian teaching, we have a phase of the primitive belief on which corpse-worship is based. The dignity assigned to Christ after his ascension followed naturally from his relationship to Jahveh, who from being the local deity of the Israelites became the Supreme God of the Universe. Mr. Allen explains the steps by which the change took place, and there is no more difficulty in connexion with the process than in the notion of a tribal chief becoming the head of a world-wide empire, especially as it is accompanied by association of the spirit of the dead with the solar body.

There are two aspects of the religious question which require fuller treatment than Mr. Allen has accorded them. The ideas entertained by a people in relation to the deity having developed in the human mind, the general idea of God is thus a kind of mental reflexion, and the genesis of this idea has yet to be definitely traced, although much has been done by Professor Tiele and other writers in this respect. The ethical side of religious development also requires much more consideration, and although Mr. Allen purposely abstains from considering the ethical aspect it is by no means clear that he is justified in doing so, if he wishes to make his treatment of the evolution of the idea of God complete. There is much evidence to show that the supposed desire or will of a deceased chief, that is a human god, is regarded as requiring obedience. If such be the case, worship and offerings are only one aspect of religion, its other aspect being ethical. The moral ideas we ascribe to God are as much a reflexion from our own minds as are the ideas we entertain as to his being.

C. STANILAND WAKE.

THE NON-RELIGION OF THE FUTURE. A SOCIOLOGICAL STUDY. Translated from the French of *M. Guyau*. New York: Henry Holt and Company. 1897. Pages, xi, 543. Price, \$3.00.

As pointed out by the author, *M. Guyau's* present work is intimately related to his earlier ones treating of aesthetics and morals. Beauty, according to his definition, is "perception or an act that stimulates life simultaneously on its three sides—sensibility, intelligence, will—and that produces pleasure by the immediate consciousness of this general stimulation." Hence the aesthetic sentiment is identical with self-conscious life, that is with the life which is conscious of its own subjective intensity and harmony. On the other hand, *M. Guyau* supposes the moral sentiment to be identical with "a consciousness of the powers and possibilities in the sphere of practice of a life ideal in intensity and breadth of interest," such possibilities relating chiefly to one's power of serving other people. When this consciousness of the social aspect of life is extended so as to embrace the totality of conscious beings, "not only of real and living, but also of possible and ideal beings," the religious sentiment appears. Thus, the essential unity of aesthetics with morals

and religion is to be found in the very notion of life, and of its individual or social manifestations.

The first portion of the present work, which deals with the religious sentiment, is devoted to the origin and evolution of what the author terms *sociological mythology*. The meaning attached to this phrase may be made clear by the author's statement, that religion consists essentially in the establishment of a bond, at first mythical and subsequently mystic, between man and the forces of the universe primitively, afterwards between man and the universe itself, and finally between man and the elements of the universe. Thus religion is regarded as "an imaginative extension, a universalisation of all the good or evil relations which exist among conscious beings, of war and peace, friendship and enmity, obedience and rebellion, protection and authority, submission, fear, respect, devotion, love: . . . a universal *sociomorphism*." M. Guyau condenses his theory into the definition of religion as a universal sociological hypothesis, which endeavors to explain all things by analogies drawn from human society, "imaginatively and symbolically considered." He accepts neither Max Müller's henotheism, with its vague idea of the infinite, nor Von Hartmann's monistic pantheism, both being of modern origin. The religious instinct of M. Renan is equally rejected as being unknown to primitive man, whose only instincts are those of self-preservation and sociability. That which M. Guyau places at the antipodes of Max Müller's theory, the spiritism of Mr. Herbert Spencer, he regards as sufficient to explain the ancestor-worship of primitive peoples, but not the "cult for the gods." The common idea which dominates both these forms of worship we find in "a natural persuasion that nothing is absolutely and definitely inanimate, that everything lives and possesses, therefore, intentions and volitions." Animals and savages, as young children among civilised peoples, look upon nature as a society, and they interpret every movement in nature as caused by desire. This *panthelism*—a term which M. Guyau proposes, in the place of fetishism, to express that primitive phase of human intelligence—represents an earlier stage of belief than the *animism* of Dr. E. B. Tylor. With the former the world is a society of living *bodies*, while with the latter the conception is of distinct souls animating each its own body, which it is capable of quitting. Animism was at one time universal, but "it immediately succeeded fetishism or concrete naturism, the primitive belief, in which animating soul and animated body were not distinguished."

The development of theism from animism M. Guyau regards as inherently necessary. When spirits are capable of separating themselves from the body, and of performing actions mysterious to us, they begin to be divine. Such beings are clairvoyant, however, as well as powerful, and are also either benevolent or hostile. Here we have the germ of the theory of Divine Providence, which later appears as the notion of a general, directing intelligence. By the growth of experience, man gradually forms the conception of an orderly subordination among the different voluntary beings with whom he peoples the earth, a kind of "unification of special



providences," and now "he conceives the world as dependent upon the will of some one or more superior beings who direct it, or suspend at need the ordinary course of things." M. Guyau by no means condemns the belief of primitive man in a Providence and in miracles which accompanies it. When man lives in the supernatural, there exists a sentiment of evil, suffering, and terror, to correct which the believer takes refuge in miracles, and "Providence is thus the primitive means of progress, and man's first hope." Nor are miracles to be regarded as frauds. They may be illusions which science is beginning to explain, or phenomena of the nervous system, and in most cases have a foundation in fact.

The most important feature of the evolution of religion is the development of its sociological and moral aspects. There can be no doubt that originally religion and morals were not related. Wickedness as well as goodness was attributed to the gods, who became divided into two classes recognised respectively as virtuous and wicked. Finally, however, the principle of goodness established its superiority under the name of God, who became "the personification of the moral law and the moral sanction, the sovereign legislator and judge, in a word, the living law of universal society, as a king is the living law in a human society." The worship of God assumes certain fixed forms which are considered essential, and their establishment as rites necessitates a priesthood, which tends to become hereditary and its members sacred. The outward cult is attended with subjective worship, the highest form of which is love to God. This under the influence of mysticism may become a perversion, as M. Guyau considers the worship of Christ to be to a considerable extent. But the love of God contains a moral element, which ultimately transforms it into a moral love, that is, the love of virtue, which expresses itself in good works and the externals of religious worship.

The second part of M. Guyau's work is devoted to a consideration of the dissolution of religions in existing societies, beginning with an examination of the nature of dogmatic faith and its particular dogmas, with especial reference to orthodox Protestantism; the conclusion being that under the influence of science, public instruction, and other agencies, the dissolution of dogmatic faith is inevitable. Such will be the fate also of the symbolic faith which is gradually taking the place of dogmatic faith, especially in Protestant countries under the influence of the teaching of such books as Matthew Arnold's *Literature and Dogma*. M. Guyau's opinion is that religious faith will finally be replaced by moral faith, religion being thus absorbed into morality. Such will be the fate also of the religious morality based upon dogma and faith. The only durable elements of religious morality are respect and love, but love of a personal God will be replaced by love of humanity, which is, however, that of God himself as ideal. This love of the ideal harmonised with the love of humanity will realise itself in action, and religion "having become the purest of all things—pure love of the ideal—will at the same time have become the realest and in appearance the humblest of all things—labor." The remainder of Part II. discusses many practical questions connected with religion. Referring



to the notion that woman is naturally prone to superstition, being governed by sentiment rather than reason, M. Guyau remarks that this is due to the restriction of woman's activity, and he affirms that as her sphere of action is enlarged woman's tendency to mystic impulses and to exercises of piety will be lessened. He has some happy thoughts on the origin and nature of modesty and also of love, which together constitute the strength of woman's disposition to propriety. Much of what M. Guyau says in relation to the religion of woman has reference more particularly to France, and such is the case also with his discussion of the effect of religion and non-religion on population and the future of the race. He considers the problem of population in France and the operation of Malthusianism, which he regards as a worse scourge than pauperism, and he suggests a number of remedies for the sterility which has caused so serious a decrease in the birth-rate. He looks to science to do in the future what religion has done in the past, to secure "the fertility of the race and its physical, moral, and economical education."

What has gone before may be considered as the prelude to the real subject of M. Guyau's exhaustive work—that which gives title to the book itself—the Non-religion of the Future. The author in his Introduction explains why he adopted this title. He states that in many books the "religion of the future" is merely a hypocritical compromise with some form of positive religion, and that he adopted what he regards as the less misleading term "Non-religion of the Future" in opposition to that form of subterfuge. And yet the term is undoubtedly misleading to those accustomed to the English language. M. Guyau remarks that "to be non-religious or a-religious is not to be anti-religious. The non-religion of the future may well preserve all that is pure in the religious sentiment: an admiration for the cosmos and for the infinite powers which are there displayed; a search for an ideal not only individual but social, and even cosmic, which shall overpass the limits of actual reality." He adds that the absence of positive and dogmatic religion is the very form toward which all particular religions tend. Moreover, the developments of religion and those of civilisation have always proceeded hand in hand; "the developments of religion have always proceeded in the line of a greater independence of spirit, of a less literal and less narrow dogmatism, of a freer speculation. Non-religion, as we here understand it, may be considered as a higher degree simply of religion and of civilisation." The distinction here made is strictly that between religion and theology, which has long been insisted on by liberal English writers, and hence M. Guyau's non-religion is in reality religion freed from its dogmatic and supernatural associations. What he enforces is the destruction of dogma and the substitution for it of metaphysical hypothesis, by which is meant speculation having for its aim the solution of the great problem of the origin and destiny of the universe. M. Guyau devotes three chapters to a consideration of the principal metaphysical hypotheses which will replace dogma. These he treats under the heads of Theism, Pantheism—under its optimistic and pessimistic phases—Idealism, Materialism, and Monism. Monism regards matter and mind as two aspects

of one and the same thing, and these two aspects are synthesised as *life*, which is the fundamental conception of philosophy. Life is productivity, and the individual, by the mere fact of growth, tends to become both social and moral. Thus, "to live is to become a conscious, a moral, and ultimately a philosophical being." Hence it is not surprising that M. Guyau finds the highest possible conception in the realm of morals,—that of "a sort of sacred league between the higher beings of the earth and even of the universe, for the advancement of what is good." The great charm of metaphysical hypotheses now is that they give a moral significance to the world, conformable to our own conscience as affectionate and social beings. This gives us the law, in which the future history of religion may be summed up; "that religious dogmas, transformed at first into simple metaphysical conjectures, reduced later to a certain number of definite hypotheses, among which the individual made his choice on increasingly rational grounds, ultimately came to bear principally on the problem of morals." Thus religious metaphysics will finally result "in a transcendental theory of universality, an ideal sociology embracing in its sweep all the beings that constitute the universe; and this sociology will be founded, not upon physical inductions, like that of the earliest religions, nor upon ontological inductions like that of the first system of metaphysics, but upon the moral conscience of mankind. Animism, theism, pantheism, are destined to fall under the domination of what may be called moralism." Monism is not here included, and, indeed, M. Guyau expressly states elsewhere that he does not purpose to pass judgment upon the pretensions of monism as a system of metaphysics, although the trend of modern thought is towards this system, which is that of evolution. In connexion with it, however, he treats of what is the most interesting part of his subject, the destiny of the human race and the hypothesis of immortality. He regards as the most discouraging aspect of the theory of evolution, the dissolution which appears to be inevitably bound up with it. But the future may not be like the past, as the resources of nature are inexhaustible, and "the conception of an ideal presupposes the existence of a more or less imperfect realisation of it." This hope M. Guyau applies to the future of man, whose immortality he believes to be possible, under the condition of the evolution of life under a superior form. Such immortality may be impersonal, but, on the other hand, it is possible "that what makes individuality limited is not of the essence of personality, of consciousness; perhaps what is best in thought and will may become universal, without ceasing in the best sense to be personal like the *Noûs* of Anaxagoras." The author supposes that within the sphere of consciousness there exists a series of concentric circles "which lie closer and closer about an unfathomable centre, personality." The impersonal immortality of our actions is unquestionable, and this alone is allowed by science. But science is opposed by affection, which protests against death, and thus we have two great opposing forces. Everywhere science is inclined "to sacrifice the individual in the name of natural evolution; love is inclined, in the name of a higher moral and social evolution, to preserve the individual." M.

Guyau finds support for the latter contention in the fact that continuity of existence means continuity of function, and he supposes that, as individual consciousness is a compound of the consciousness of all the cells that are united in the physical organism, thus constituting the individual a society, so the consciousness of different individuals may be able to interpenetrate and thus communicate to each other a new sort of durability, the individual consciousness surviving as a constituent part in a more comprehensive consciousness. According to this view, immortality may be "an ultimate possession acquired by the species, as a whole, for the benefit of all its members." M. Guyau thinks that as the basis of consciousness is inaccessible to science, a still more literal immortality is possible, but he admits that it is all pure speculation, and for him who sees death in "all its brutality," he counsels the resignation of Stoicism, and offers the consolation that "the portion of the immortal patrimony of the human race, which has been entrusted to him and constitutes what is best in him, will endure and increase, and be passed on, without loss, to succeeding generations." We have not space to consider what is to be the future of the practical side of the religious spirit, beyond the bare statement that associations will be formed for intellectual, moral, and æsthetic purposes and that to the worship of the memory of the dead will be added the worship of nature, which will be the true temple of the future. We must now leave M. Guyau's remarkable work, which to wide erudition adds profound thought and which criticises the beliefs and practices that have developed with the growth of mankind in the most charitable spirit and in language so clear and precise that "he who runs may read and understand."

C. STANILAND WAKE.

A MANUAL OF ETHICS. By John S. Mackenzie, M. A., Professor of Logic and Philosophy in the University College of South Wales and Monmouthshire. Third edition. Revised, enlarged, and in part rewritten. University Correspondence College Press. London: W. B. Clive; New York: Hinds & Noble. 1897. Pages, xvi+456. Price, \$1.50.

The favorable reception accorded Professor Mackenzie's *Manual of Ethics* by the class of readers to which it is particularly addressed, may be taken as evidence not only that it supplies a widely-felt want, but that its views recommend themselves to those who are in search of the best thought on the ethical subject. It is not surprising that the book has reached a third edition, which will be welcome, as it enables the author, by the alteration of certain passages and the addition of fresh matter, to remove the impression which had been formed by some persons, that he had given too little weight to ethics as a subject of actual experience in the relations of social life. Like every other form of mental activity, the ethical has a double aspect: one subjective and the other objective, these appearing respectively as Character and Conduct. Professor Mackenzie defines Ethics as the Science of the Ideal in Conduct, and yet, as he points out, the Greek word *ἦθος* means character. This forms the real basis of conduct, which thus stands towards character in much

the same relation as that which function has towards structure or organic disposition. When psychology has been assigned to its proper position, it may be found, indeed, that organic and psychical disposition are practically one and the same thing. This would give Ethics a physiological basis, but Professor Mackenzie, in accordance with the teaching of the school of Idealism whose views he adopts, begins his discussion with a consideration of the strictly psychological aspects of Ethics. Thus he deals with the subject of desire and will and with the nature of conscience and of the moral judgment. Desire is distinguished from appetite in that the former alone implies a definite point of view. Men's desires depend on what they like, and what they like is, as insisted by Mr. Ruskin, an exact expression of what they are. A person's desires thus form the "universe" of his character, as this presents itself at the time at which any particular desire is felt. With reference to the conflict of desires, the author points out that a desire will conquer, not because it is the stronger, but because it forms part of a stronger universe. Even this is not an adequate statement of the case, for with most actual human beings, "what we have is not so much any one universe that decidedly predominates, as a number of universes that stand to one another in certain definite relations," the differences of relation constituting differences of character.

Professor Mackenzie affirms that the question how it comes about that one set of relations predominates at one time and not at another belongs to Psychology rather than to Ethics. It must not be lost sight of, however, that Ethics correspond to what in the theoretical division of the mind is called the Will, and therefore cannot be entirely separated from Psychology at any point. The development of the moral judgment in relation to conduct has been largely due to the action of society on the individual, whose conduct in relation to society constitutes what is called applied ethics; but that may be said with equal truth of intellectual development as a whole. This must be distinguished from the development of the rational faculty the action of which on the other mental factors gives rise to the consciousness of self or self-consciousness that is characteristic of the human mind. Professor Mackenzie of course adopts the theory of Ethics, formulated by Green, which is based on the fact that man possesses a rational principle. The rational self is the true self, and this is "the universe that we occupy in our moments of deepest wisdom and insight." The rational principle is supposed by Green to be *implicit* in nature but *explicit* in man, or at least becoming so. The significance of the moral life consists in the continual endeavor to make the rational principle more and more explicit,— "to bring out more and more completely our rational, self-conscious, spiritual nature." This statement is especially true of what may be regarded as the historical period of man's existence on the earth, but it must be applicable also to man under the most primitive conditions. There cannot have been any breach of continuity in moral progress, and although this has proceeded in later ages by accelerated steps, it must always have taken place.

Moral improvement has kept pace with intellectual development, or rather

with that of the rational faculty. The remarkable influence which the customary law of barbarous peoples has over the conduct of individuals arises from the fact that "law," written or unwritten, is recognised as the expression of reason, having for its view the social welfare. Here we have the real basis of the "social imperative," for although, as Mr. Herbert Spencer remarks, "we must consider the ideal man as existing in the ideal social state," the ideal itself is merely an expression of the rational principle, which is ever reaching higher and higher and exhibiting its influence in what is known as moral progress. The ideal has, nevertheless, an æsthetic element, as the emotional nature forms the real basis of all conduct. It constitutes the character, and it is through its action on the character that the rational principle affects moral conduct.

Professor Mackenzie's excellent book is not meant to be exhaustive, and yet it touches on every aspect of the ethical question, discussing the several theories of the moral standard that have been formed, and dealing at length with the application of ethical principles to the practical life. In his last chapter the author treats shortly of the metaphysical or religious relations of Ethics, affirming in its final sentence that "Ethics, regarded as a separate science, is not complete in itself," a conclusion which, although somewhat tautologically expressed, is required by the general argument of his work. One of its most valuable features is the reference throughout to other works treating of the various branches of its subject, and it is interesting to note that not a few of these are by American writers. C. S. W.

**A STUDY OF ETHICAL PRINCIPLES.** By *James Seth*, M. A., Sage Professor of Moral Philosophy in Cornell University. Third edition, revised and enlarged. Edinburgh and London: William Blackwood and Sons. 1898. Pages, xvi, 470.

The present edition of Professor Seth's able work contains some notable additions. A chapter on "The Methods of Ethics" is intended to explain the author's changed opinion as to the limits of the science which, as belonging to the type of sciences which seeks to organise into a rational system "the chaotic mass of our Ought-judgments," he now regards as normative or appreciative, although as embracing the investigation of the moral facts—the genetic study of the moral life and the moral consciousness—it may also be called a natural or descriptive science. To the second part of the work has been added a chapter on Moral Progress, the law of which is the discovery of the individual and of his place in the body politic, without which discovery ethics would be meaningless. The author has, moreover, endeavored to re-think the entire subject, and to throw some light upon the real course of ethical thought in ancient and in modern times, and in particular to re-state the contribution of Aristotle and other Greeks to moral science. Accordingly he has adopted the term Eudæmonism in its original Aristotelian sense as having relation to goodness, using it to characterise his own position in contradistinction to Hedonism, which is the expression of ethical realism, as distinguished from ethical



idealism or transcendentalism. Professor Seth describes Eudæmonism as the Ethics of Personality, and he refers in the Preface to the present volume to the fact that the distinction between the "individual" and the "person," which was insisted on by Hegel, finds a leading place in the discussion of the ethical problem, following the example of Professor Laurie in his *Ethica, or the Ethics of Reason*.

The distinction between the individual and the person is fundamental in connexion with the ethical problem and it will be well to see how Professor Seth deals with it. In his introductory remarks he compares the ancient and the modern conceptions of the moral ideal. The former he affirms to be external, the ancients being inclined to regard the end as something to be acquired rather than as an ideal to be attained; whereas the modern conception of morality is mechanical, owing to its tendency to exaggerate the notion of law. This is consistent with the difference in the moral ideal entertained by the ancient and modern worlds. The one was political or social and the other is individualistic, both which views are inadequate although they are complementary. The moral individual cannot be isolated. He is a social or political being. On the other hand, "the individual is more than a member of society; he is not the mere organ of the body politic. He too is an organism, and has a life and ends of his own. The good is, for every individual, a social or common good, a good in which he cannot claim such private property as to exclude his fellows; their good is his, and his theirs. Yet the good—the only good we know as absolute—is always a personal, not an impersonal, good, a good of moral persons." The author concludes, therefore, that the person, and not society, is the ultimate ethical unit and reality. What is meant by "person" is evident from the description of Eudæmonism as "the Ethics of that total human Personality which contains, as elements, both reason and sensibility."

It is in connexion with the theory of Eudæmonism that the distinction between the individual and the person is fully explained. In answering the question, What is the self? Hedonism answers, the sentient self; rationalism, the rational self; and Eudæmonism, the total self, rational and sentient. The sentient self is the individual self which is possessed by animals as well as by men. That is, man by virtue of his sentient existence is animal, and this is the character of his individuality. But man is a rational animal, and it is his self-consciousness, the "power of turning back upon the chameleon-like, impulsive, instinctive, sentient or individual self, and gathering up all the scattered threads of its life in the single skein of a rational whole, that constitutes the true selfhood of man." It is this higher self, which is restricted to man, that Professor Seth intends by "personality," as distinguished from the lower or animal selfhood of mere individuality. He insists, nevertheless, that the person is always an individual, and that the personality constitutes itself out of the individuality and acts upon it. Reason has no exclusive interests of its own apart from those of sensibility. Its interest is in fact the total interest of sensibility itself. The key to the ethical harmony is, says the author, *Be a person*, by which is meant "constitute out of your natural individuality, the



true or ideal self of personality." This is to be effected through the action of reason, which operates in man as will. Will is not attributed to the animal as it cannot "arrest the stream of impulsive tendency, but is borne on the tide of present impulse."

In Part III. of his work Professor Seth treats of the metaphysical implications of morality, and says truly that ethics is not mere anthropology—"to interpret the life of man as man, we must interpret human nature, and its world or sphere, we must investigate man's place in nature, his relations to his fellows, and his relation to that life of God which in some sense must include the life of nature and of man." In conclusion, therefore, he treats of the three problems of the Metaphysics of Ethics—the problems of Freedom, God, and Immortality. The solution of these problems is consistent with the general theory of the work, which is deserving of high praise, not only for the nature of its argument but also for the clearness with which it is enforced.

*DIE SOCIOLOGISCHE ERKENNTNIS. Positive Philosophie des socialen Lebens. Von Gustav Ratzenhofer. Leipzig: F. A. Brockhaus. 1898. Pages, 372.*

The author, who is a professed follower of August Comte, having written a three-volume work on the nature and purpose of politics as a part of sociology, sketches in the present volume the nature of sociological cognition. Herr Ratzenhofer insists in the first section of his book on the importance of sociological cognition, a truth which cannot be denied. He claims that philosophy of late has lost its importance, and the opinion is gaining ground that the end of all philosophy is close at hand. In fact, philosophy has been ousted by experimental psychology and finds it difficult to prove its right of existence. But we are assured that philosophy may hope for a regeneration from sociology. At present it consists of purely subjective speculations, but broadened by psychological investigations it will make scientific ethics, aesthetics, jurisprudence, and political economy possible.

There are two foundations for sociology. One is based on psychology, the other on natural science. In discussing the former (Section II.) Herr Ratzenhofer enters into biological investigations of the origin of consciousness from the primordial force or *Urkraft*, which is an idea of fundamental importance in the author's metaphysics. It is the *Urkraft* from which all living creatures emanate. The natural sciences teach the mutual interdependence of all things, and this law shows itself in gravitation, in chemism, in organisms, and in social institutions. This leads to the fourth section, in which social institutions are discussed. Here Herr Ratzenhofer explains the nature of hordes, the origin of custom, the life of nomads, agriculture, the right of work, the right of conquest, the origin of state, the solidarity of interests, the evolution of nations and social differentiation, religions, and similar topics. Of special interest to American readers will be the author's opinions on the colonisation of America and Australia, especially as he has apparently never set foot on either continent. The United States of North America are superior to

other colonies, because they were founded by religious exiles. A mixture of the colonists with the natives was impossible, continues Herr Ratzenhofer, on account of the incompatibility of the races, but black slaves were introduced as workers in the fields. The sociological importance of slavery became prominent only through the mixture of negroes and whites which ultimately led to their emancipation. Mulattoes in the South multiplied the social divergency, while in the North they remained excluded from society. They are not allowed a share in the social differentiation. This dooms them, and thus they have already begun to re-emigrate to Liberia in Africa, and partly pursue only such industries as practically render them the lowest class of population, and are, through the increase of the white race, more and more suppressed.

North America, Herr Ratzenhofer claims, lacks that wealth of forms which distinguishes the interests of Europe. The one-sidedness of industrial interests produces that uniformity which, as we have learned from him, in considering the history of the yellow race, is not favorable to a higher social development. As to Australia, we are told that emigration there consisted, first, of deported criminals, then of the surplus of that part of the population which was driven from home through competition, and thirdly, of gold-seeking adventurers. This renders Australian society even more uniform than that of the United States, and the body politic lacks every warlike incentive, greed being the only motive which dominates social interests. The fifth section explains the fundamental doctrines of sociology which finds in differentiation the main law of social development. Here we meet with such topics as the tendency of perfection in the social process, individualisation, and socialisation, etc. The sixth section explains the social forces, especially the will of the individual and the social will. The seventh section shows the social evolution in the light of social cognition.

We need scarcely enter into further details, as we must leave it to the reader to form his own opinion how far our author has succeeded in contributing his share to the progress of sociology. It is sufficient for us to have characterised the book in general and to have called to it the attention of our readers.

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#### ERRATUM.

In the review of Mr. Hawley's *Logic* (April *Monist*, page 464, line 14 from bottom) the word "Hamiltonian" was accidentally omitted before the parenthetical words ("with its paralogisms"). The stricture was intended, of course, to apply to the Hamiltonian system only, and not to the Aristotelian.

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## CONTENTS:

	PAGE
THE PHILOSOPHY OF EVOLUTION. PROF. C. LLOYD MORGAN	481
GNOSTICISM IN ITS RELATION TO CHRISTIANITY. EDITOR	502
ASSIMILATION AND HEREDITY. PROF. JACQUES LOEB	547
THE SOCIAL PROBLEM. DR. P. TOPINARD	556
GOD IN SCIENCE AND RELIGION. CANON GEO. J. LOW	596
LITERARY CORRESPONDENCE. France. LUCIEN ARRÉAT	602
DISCUSSIONS. God in Science and Religion. Remarks on Canon Low's Article. EDITOR	610
BOOK REVIEWS. [For particulars see inside title-page.]	616

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## CONTENTS:

	PAGE
THE PHILOSOPHY OF EVOLUTION.	
PROF. C. LLOYD MORGAN - - - - -	481
GNOSTICISM IN ITS RELATION TO CHRISTIANITY.	
EDITOR - - - - -	502
ASSIMILATION AND HEREDITY.	
PROF. JACQUES LOEB - - - - -	547
THE SOCIAL PROBLEM.	
DR. P. TOPINARD - - - - -	556
GOD IN SCIENCE AND RELIGION.	
CANON GEO. J. LOW - - - - -	596
LITERARY CORRESPONDENCE. France.	
LUCIEN ARRÉAT - - - - -	602
DISCUSSIONS.	
God in Science and Religion. Remarks on Canon Low's article.	
EDITOR - - - - -	610
BOOK REVIEWS - - - - -	616
The Will to Believe. By <i>William James</i> , p. 616.—The Origin and Growth of Plato's Logic With an Account of Plato's Style and of the Chronology of His Writings. By <i>Vincenti Lutoslawski</i> , p. 621.—La structure du protoplasma et les théories sur l'hérédité. By <i>Yves Delage</i> , p. 625.—The Evolution of the Idea of God. By <i>Grant            Allen</i> , p. 627.—The Non-Religion of the Future. By <i>M. Guyau</i> , p. 630.—A Manual of Ethics. By <i>John S. Mackenzie</i> , p. 635.—A Study of Ethical Principles. By <i>James Seth</i> , p. 637.—Die sociologische Erkenntnis. By <i>Gustav Ratzenhofer</i> , p. 639.—Erratum, p. 640.	

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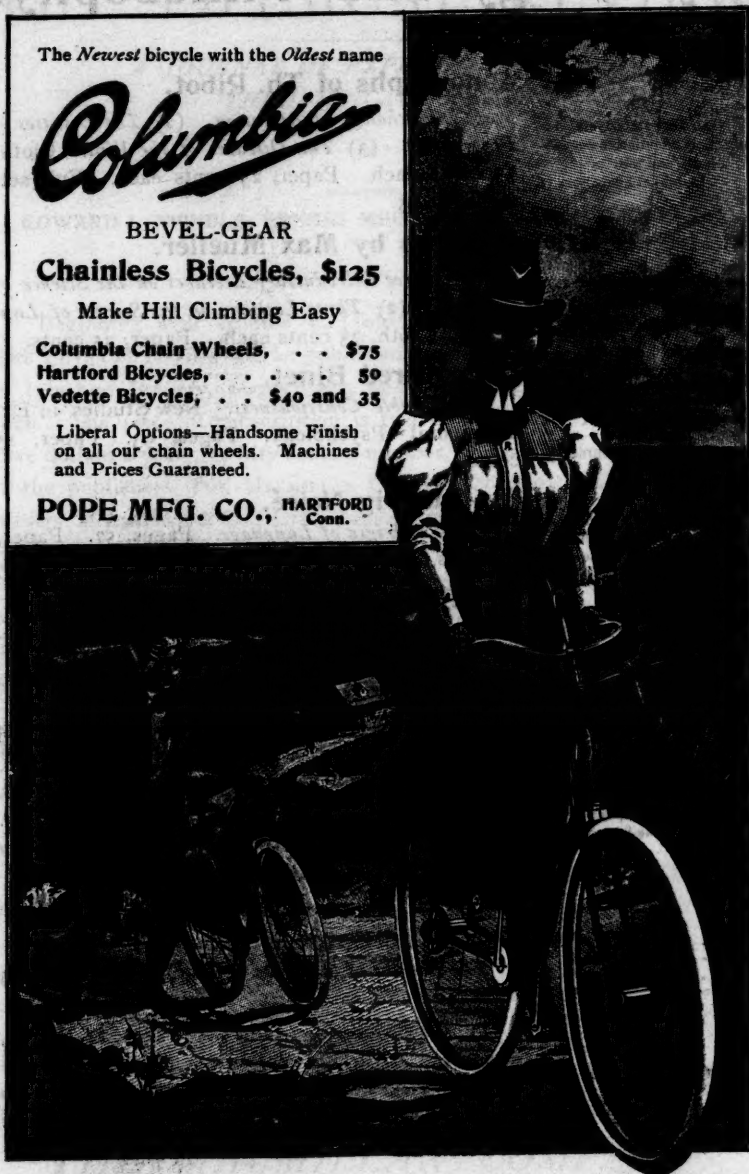
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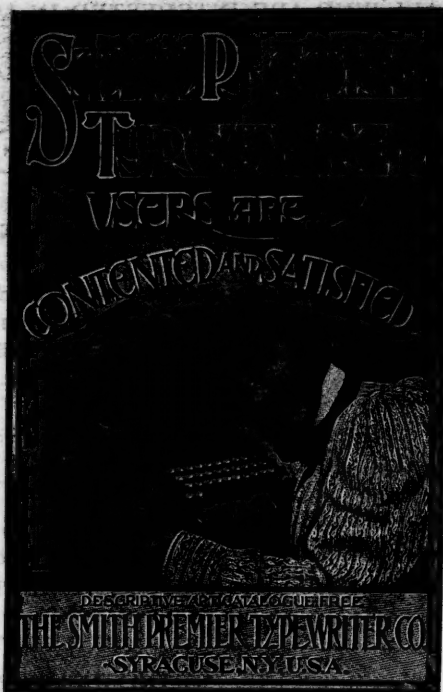
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